

DATE: 9/25/2019

FILE: P.I.# 0008680
Warren County / GDOT District 2 - Tennille
I-20 Frontage Rd from CR21/Williams Creek Church Rd to CR185/Cadley Rd
Phase II - TIA - New Location

FROM:  for Brent Story, State Design Policy Engineer

TO: SEE DISTRIBUTION

SUBJECT: APPROVED CONCEPT REPORT

Attached is the approved Concept Report for the above subject project.

Attachment

Distribution:

Hiral Patel, Director of Engineering
Joe Carpenter, Director of P3
Albert Shelby, Director of Program Delivery
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Darryl VanMeter, Assistant Director of P3/State Innovative Delivery Administrator
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Andrew Heath, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Erik Rohde, State Project Review Engineer
Monica Flournoy, State Materials Engineer
Patrick Allen, State Utilities Engineer
Eric Conklin, State Transportation Data Administrator
Attn: Systems & Classification Branch
Benny Walden, Statewide Location Bureau Chief
Corbett Reynolds, District Engineer
Todd Price, District Preconstruction Engineer
Jamie Lindsey, District Utilities Manager
Eric Wilkinson, Project Manager
BOARD MEMBER - 10th Congressional District



Project Concept Report

Project Type:	New Location	P.I. Number:	0008680
GDOT District:	2	County:	Warren
Federal Route Number:	N/A	State Route Number:	N/A
Project Number:	CSMSL-0008-00(680)		

Phase II of a new frontage road in Warren County extending from Williams Creek Church Road NE/CR 21 to Cadley Road/CR 185. Previously, this project was included under PI No. 0007534 but abandoned due to lack of funding but is now included in the TIA program.

Submitted for approval:

Concept Report resubmitted 9/13/2019

Kevin Skinner

06-12-2019

Kevin Skinner, PE, Pond and Company

Date

[Signature]

07-17-2019

State TIA Administrator

Date

[Signature]

07-01-2019

GDOT TIA Project Manager

Date

Recommendation for approval: * *Recommendations on File/AT*

* *Eric Duff/AT*

State Environmental Administrator

09/06/2019

Date

* *Chris Raymond/AT*

State Traffic Engineer

08/02/2019

Date

for

* *Joshua B Taylor/AT*

Project Review Engineer

08/07/2019

Date

for

* *Stevonn Dilligard/AT*

State Utilities Engineer

09/04/2019

Date

for

* *Todd Price/AT*

District Engineer

08/06/2019

Date

for

- ☐ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).
- ☒ Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

R. Paul Tanner

State Transportation Planning Administrator
State Transportation Planning Administrator

7-29-19

Date
Date

PROJECT LOCATION MAP



Warren County Frontage Road Phase II

William's Creek Church Road to Cadley Road

Warren County

PI No. 0008680

PLANNING AND BACKGROUND

Project Justification Statement:

This document and Project Justification Statement (PJS) is prepared for GDOT Office by Pond & Company for approval by GDOT.

PI No. 0008680 is Phase II of a Band 3 TIA project, which requires letting by December 31, 2022. This project was previously Phase II of PI No. 0007534 from Ridge Road to SR 80. Due to funding issues, PI No. 0007534 was abandoned, and the projects were included in the TIA program. After passage of the TIA program in the CSRA, two new PI numbers were created, including PI No. 0008680 (Phase II). Due to the expansion of the APAC Mid-South Quarry, connection to SR 80/Washington Road is not feasible; this new alignment is proposed west of Cadley Road.

This project consists of the construction of a new frontage road along the south side of I-20 in Warren County to encourage future industrial economic development. With little commercial and industrial development occurring in Warren County along I-20, this frontage road is anticipated to attract needed development that has traditionally located to other counties along I-20. Warren County has identified the frontage road as vital to providing access to the large tracts of undeveloped land that will attract commercial and industrial development.

The proposed project will be located south of I-20 with the western terminus tying into Williams Creek Church Road/CR 21. Williams Creek Church Road is currently an unpaved roadway with future County plans for paving. The eastern terminus is just west of Cadley Road/CR 185 at the previously completed intersection that the Phase I project (PI No. 0010844) also ties into. The new location roadway is approximately 2.20 miles long.

The proposed project includes the construction of a two-lane road between the previously mentioned limits. The proposed typical section will consist of two, 12-foot lanes with 10-foot rural shoulders (2 foot paved) on a 100-foot proposed right of way.

Environmental concerns include requiring EA documentation and Corps permitting. There will be three crossings over streams stemming from Williams Creek north of I-20. There are existing wetlands that will require crossing per the U.S Fish & Wildlife website under the National Wetlands Inventory.

Existing conditions: N/A, new location roadway.

Other projects in the area:

PI No. 0010844, Warren County Phase I new location roadway.

M005873, I-20 From SR 22/Taliaferro to SR 17/McDuffie

M004920, I-20 from SR 44/Greene to SR 10/SR 17/McDuffie

M004312, SR 12 from Taliaferro County Line to CS 639/Meadow Road

MPO: Not Urban **TIP #:** RC07-000160

Congressional District(s): 10

Federal Oversight: ☐ PoDI ☒ Exempt ☐ State Funded ☒ Other (TIA)

Projected Traffic: AADT 24 HR T: 7.5 %

Current Year (2019): N/A Open Year (2024): 0

Design Year (2044): 2100

Traffic Projections Performed by: Pond and Company

Date approved by the GDOT Office of Planning: 5/6/19

AASHTO Functional Classification (Mainline): Rural Major Collector

AASHTO Context Classification (Mainline): Rural

AASHTO Project Type (Mainline): New Construction

Complete Streets - Bicycle, Pedestrian, and/or Transit Standard Warrants:

Warrants met: ☒ None ☐ Bicycle ☐ Pedestrian ☐ Transit

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? ☒ No ☐ Yes

Pavement Evaluation and Recommendations

Initial Pavement Evaluation Summary Report Required? ☒ No ☐ Yes
Feasible Pavement Alternatives: ☒ HMA ☐ PCC ☐ HMA & PCC

DESIGN AND STRUCTURAL

Description of the proposed project: A new frontage road along the south side of I-20 in Warren County, Georgia. The proposed road ties in just south of I-20 at William's Creek Church Road, and runs 2.25 miles east to tie into Cadley Road approximately a half mile south of I-20. The proposed road will consist of two, 12-foot lanes with 10-foot rural shoulders (2 feet paved) on 100-foot maximum proposed right of way. Three existing tributaries to Williams Creek will likely require culverts.

Major Structures:

Structure	Existing	Proposed
Double 8-ft x 6-ft Culvert	N/A	Proposed 12-ft lanes and 10-ft rural shoulders
Triple 8-ft x 6-ft Culvert	N/A	Proposed 12-ft lanes and 10-ft rural shoulders
Double 6-ft x 6-ft Culvert	N/A	Proposed 12-ft lanes and 10-ft rural shoulders

Is the project located on an NHS roadway? ☒ No ☐ Yes

Is the project located on a Special Roadway or Network? ☒ No ☐ Yes STRAHNET Connectors

Mainline Design Features: Phase II, Frontage Road

Feature	Existing	*Policy	Proposed
Typical Section:			
- Number of Lanes	N/A		2
- Lane Width(s)	N/A	11-12	12
- Median Width & Type	N/A	N/A	N/A
- Outside Shoulder Width (Paved Width)	N/A	6-ft/8-ft (4-ft)	10-ft (2-ft)
- Border Area Width	N/A	N/A	N/A
- Outside Shoulder Slope	N/A	6%	6%
- Sidewalks	N/A	N/A	N/A
- Auxiliary Lanes	N/A		12-ft
- Bike Accommodation	N/A	N/A	N/A
- Posted Speed	N/A		55
Design Speed	N/A	45	55
Minimum Horizontal Curve Radius	N/A	1060	1060
Maximum Superelevation Rate	N/A	6%-8%	6%

Maximum Grade	N/A	7%	5.533%
Access Control	N/A	Permit	Permit
Design Vehicle	N/A		WB-67
Check Vehicle	N/A		N/A
Pavement Type	N/A		Asphalt

*According to current GDOT design policy if applicable

Design Exceptions/Design Variances to FHWA or GDOT Controlling Criteria anticipated:

FHWA or GDOT Controlling Criteria	No	Undetermined	Yes	DE or DV	Approval Date (if applicable)
1. Design Speed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2. Design Loading Structural Capacity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3. Stopping Sight Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4. Horizontal Curve Radius	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5. Maximum Grade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6. Vertical Clearance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7. Superelevation Rate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8. Lane Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9. Cross Slope	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10. Shoulder Width	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewing Office	No	Undetermined	Yes	Approval Date (if applicable)
1. Access Control	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Shoulder Width	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Intersection Sight Distance	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Intersection Skew Angle	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Tangent Lengths on Reverse Curves	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Lateral Offset to Obstruction	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7. Rumble Strips	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8. Safety Edge	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9. Median Usage	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10. Roundabout Illumination Levels	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11. Complete Streets Warrants	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12. ADA Requirements in PROWAG	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13. GDOT Construction Standards	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. GDOT Drainage Manual	DP&S	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

VE Study anticipated: ☒ No ☐ Yes ☐ Completed – Date: _____

Lighting Required: ☒ No ☐ Yes

Off-site Detours Anticipated: ☒ No ☐ Undetermined ☐ Yes

If yes: Roadway type to be closed: ☐ Local Road ☐ State Route

Detour Route selected: ☐ Local Road ☐ State Route

District Concurrence w/Detour Route: ☐ No/Pending ☐ Received *Select a date*

Transportation Management Plan [TMP] Required: ☒ No ☐ Yes

If Yes: Project classified as: ☐ Non-Significant ☐ Significant

TMP Components Anticipated: ☐ TTC ☐ TO ☐ PI

INTERSECTIONS AND INTERCHANGES

Interchanges/Major Intersections:

Williams Creek Church Road – tie to existing dirt road, no work on this side road

Cadley Road/CR 185 – tie into existing buildout, just west of intersection

Intersection Control Evaluation (ICE) Required: ☒ No ☐ Yes

The intersection with Cadley Road/CR 185 will not be adjusted, the full build out was completed in Phase 1. The tie-in of the beginning of the project with Williams Creek Church Road is a tie-in with a dirt road.

Roundabout Concept Validation Required: ☒ No ☐ Yes ☐ Completed – Date: Date

UTILITY AND PROPERTY

Railroad Involvement: N/A

Utility Involvements:

AT&T – telecommunications

Dixie Pipeline – gas

Jefferson Energy Cooperative - power

SUE Required: ☒ No ☐ Yes ☐ Undetermined

Public Interest Determination Policy and Procedure recommended: ☒ No ☐ Yes

Right-of-Way (ROW): Existing width: N/A ft. Proposed width: 100 ft.

Required Right-of-Way anticipated: ☐ None ☒ Yes ☐ Undetermined

Easements anticipated: ☒ None ☐ Temporary ☐ Permanent * ☐ Utility ☐ Other

* *Permanent easements will include the right to place utilities.*

Anticipated total number of impacted parcels: 10

Businesses:

Displacements anticipated: Residences:

Other:

Total Displacements: 0

Location and Design approval: ☐ Not Required ☒ Required

Impacts to USACE property anticipated: ☒ No ☐ Yes ☐ Undetermined

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: N/A

Context Sensitive Solutions Proposed: N/A

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document: NEPA ~ EA-FONSI

Level of Environmental Analysis:

- ☐ The environmental considerations noted below are based on preliminary desktop or screening level environmental analysis and are subject to revision after the completion of resource identification, delineation, and agency concurrence.
- ☒ The environmental considerations noted below are based on the completion of resource identification, delineation, and agency concurrence.

Water Quality Requirements:

MS4 Permit Compliance – Is the project located in a MS4 area? ☒ No ☐ Yes

Is Non-MS4 water quality mitigation anticipated? ☒ No ☐ Yes

Environmental Permits/Variations/Commitments/Coordination anticipated:

Permit/Variance/Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Forest Service/NPS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3. CWA Section 404 Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Regional Permit
4. Tennessee Valley Authority Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5. USACE Real Estate Outgrant	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
6. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	To be determined per project design.
7. Coastal Zone Management Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. FEMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Cemetery Permit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
11. Other Permits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12. Other Commitments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
13. Other Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

Is a PAR required? ☒ No ☐ Yes ☐ Completed – Date:

Environmental Comments and Information:

NEPA/GEPA: Project is expected to be an Environmental Assessment (EA). No significant NEPA risks expected. Will require coordination for Logical Termini and ICI analysis.

Ecology: No protected species surveys required. Within our survey area, there are: 4 perennial streams, 3 intermittent streams, and 4 wetlands.

History: The Historic Resource Survey Report (HRSR) has been completed. No potentially eligible resources located within the study area.

Archeology: No cemeteries or other archaeological resources expected. Surveys underway.

Air Quality:

Is the project located in an Ozone Non-attainment area? ☒ No ☐ Yes

County: Warren

Is a Carbon Monoxide hotspot analysis required?

☒ No☐ Yes**Noise Effects:** Noise impact analysis needed. Very few (< 10) receptors located on project alignment.**Public Involvement:** Consistent with the EPM and, based on the level of NEPA documentation anticipated, a Public Information Open House (PIOH) would be required. In addition, once the EA has been determined ready for public review by FHWA, a Public Hearing Open House (PHOH) will be held prior to preparation of the Finding of No Significant Impact (FONSI).**Major stakeholders:** Warren County Government; Warren County Chamber of Commerce, Property Owners (<10).

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: N/A**Early Completion Incentives recommended for consideration:**☒ No☐ Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Federal Aviation Administration (FAA) coordination anticipated:☒ No☐ Yes**Initial Concept Team Meeting:** N/A**Concept Team Meeting:**

August 9, 2017 – coordination of alternates with County officials

November 11, 2018 – coordination of selected alignment with County officials

Other coordination to date: N/A

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Pond and Company
Design	Pond and Company
Right-of-Way Acquisition	Warren County
Utility Coordination (Preconstruction)	GDOT District Utilities (D2)
Utility Relocation (Construction)	Utility Owners
Letting to Contract	GDOT Construction Bidding
Construction Supervision	GDOT District Construction (D2)
Providing Material Pits	Contractor
Providing Detours	N/A
Environmental Studies, Documents, & Permits	VHB / GDOT OES
Environmental Mitigation	VHB / GDOT OES
Construction Inspection & Materials Testing	GDOT District Construction (D2)

Project Cost Estimate Summary and Funding Responsibilities:

	PE Activities		ROW	Reimbursable Utilities	CST*	Total Cost
	PE Funding	Section 404 Mitigation				
Programmed Cost:	\$970,000.00		\$984,000.00	N/A	\$9,560,000.00	\$11,514,000.00
Funded By:	TIA		Local	Local	TIA/Federal	
Estimated Amount:	\$970,000.00	\$800,877.00	\$380,000.00	\$316,000.00	\$6,087,756.66	\$8,554,633.66
Date of Estimate:		05/29/2019	02/15/2019	01/22/2019	08/27/2019	
Cost Difference:			-\$604,000.00	N/A	-\$3,472,243.34	-\$2,959,366.34

*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment.

- See GDOT Worksheet
 - E&I (5%)
 - Contingencies (15.0%)
 - Liquid AC Cost Adjustment (\$272,329.25)

Any federal earmarked funds saved on 0010844-I-20 Frontage Road Phase I can be move to 0008680-I-20 Frontage Road Phase II.

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: Two lane road running along the south side of I-20 to connect William's Creek Church Road to Cadley Road.			
Estimated Property Impacts:	10 Parcels	Estimated Total Cost:	\$8,554,633.66
Estimated ROW Cost:	\$380,000.00	Estimated CST Time:	18 months
Rationale: This is the preferred alternate that meets the goals of the Project Justification Statement by providing access to the larger parcels of land for future development.			

No-Build Alternative: No construction of a new frontage road.			
Estimated Property Impacts:	0	Estimated Total Cost:	0
Estimated ROW Cost:	0	Estimated CST Time:	0
Rationale: This would not meet the goals of the Project Justification Statement and there would be no access to the large undeveloped tracts of land. There would be no access to encourage more industrial and economic development in the area.			

Alternative 1: A 1-mile road running from Cadley Road along the proposed alignment ending at a cul-de-sac.			
Estimated Property Impacts:	6 Parcels	Estimated Total Cost:	\$3,367,577.35

Estimated ROW Cost:	\$170,392.00	Estimated CST Time:	12 months
Rationale: This alternate would not meet the goals of the Project Justification Statement providing minimal frontage area along I-20, and not providing a full connection from William's Creek Church Road to Cadley Road.			

Comments: The project is TIA and therefore required to be build according to the regulations/law. The alternative is a reasonable alternative if there was not enough funding to develop the entire project, although that is not the case currently. The preferred alternative will open up more land for future development.

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. GDOT Revisions to Programmed Costs Worksheet
 - b. Right-of-Way
 - c. Environmental Mitigation
 - d. Utilities
4. Crash summaries
5. Design Traffic diagrams
6. Capacity analysis summary
7. Summary of TE Study and/or Signal Warrant Analysis
8. Minutes of Concept meetings
9. Minutes of any meetings that shows support or objection to the concept
10. Concept Utility Report

APPROVALS

Concur:

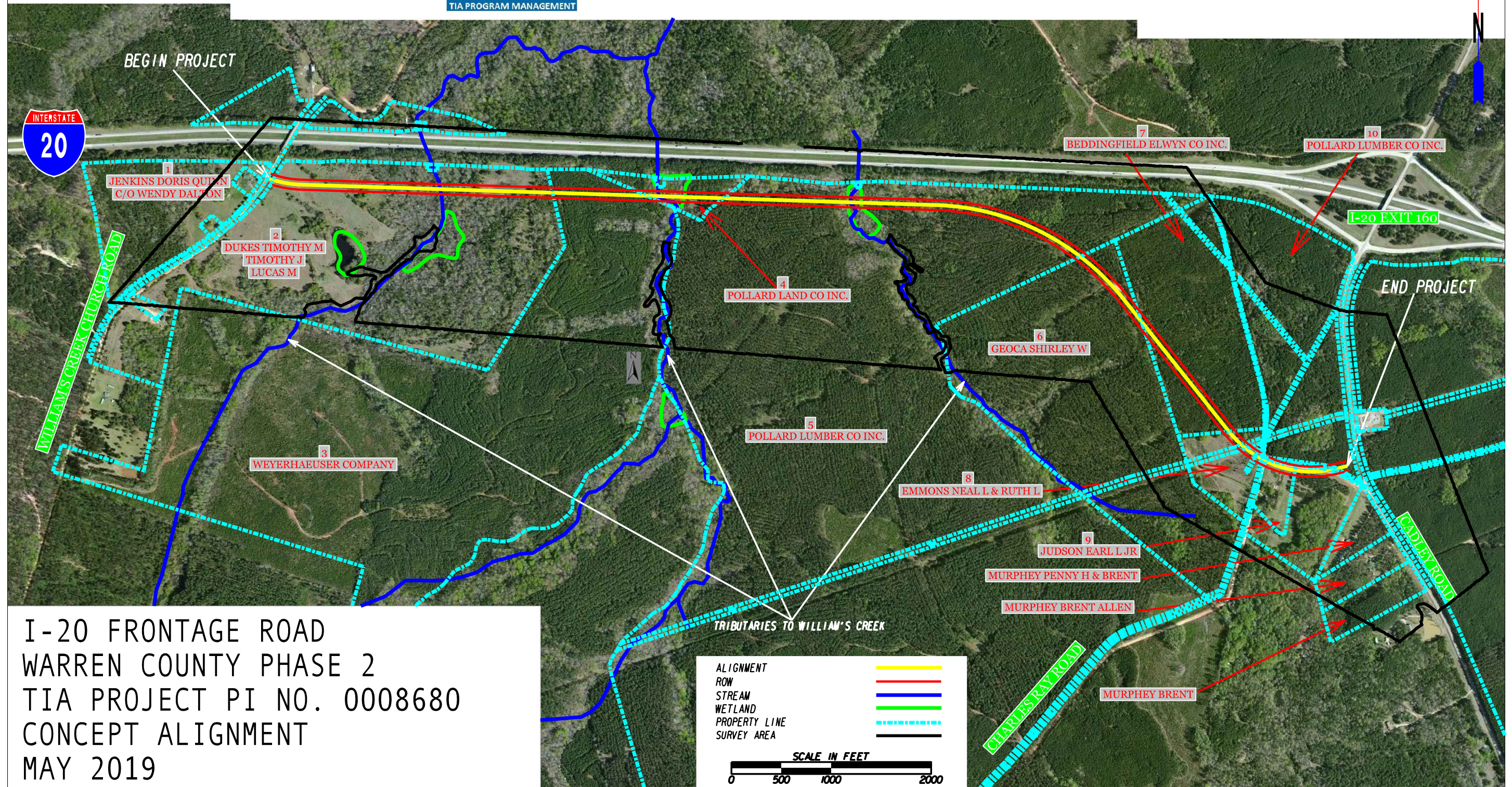
Hind Ball
Director of Engineering

9/19/19
Date

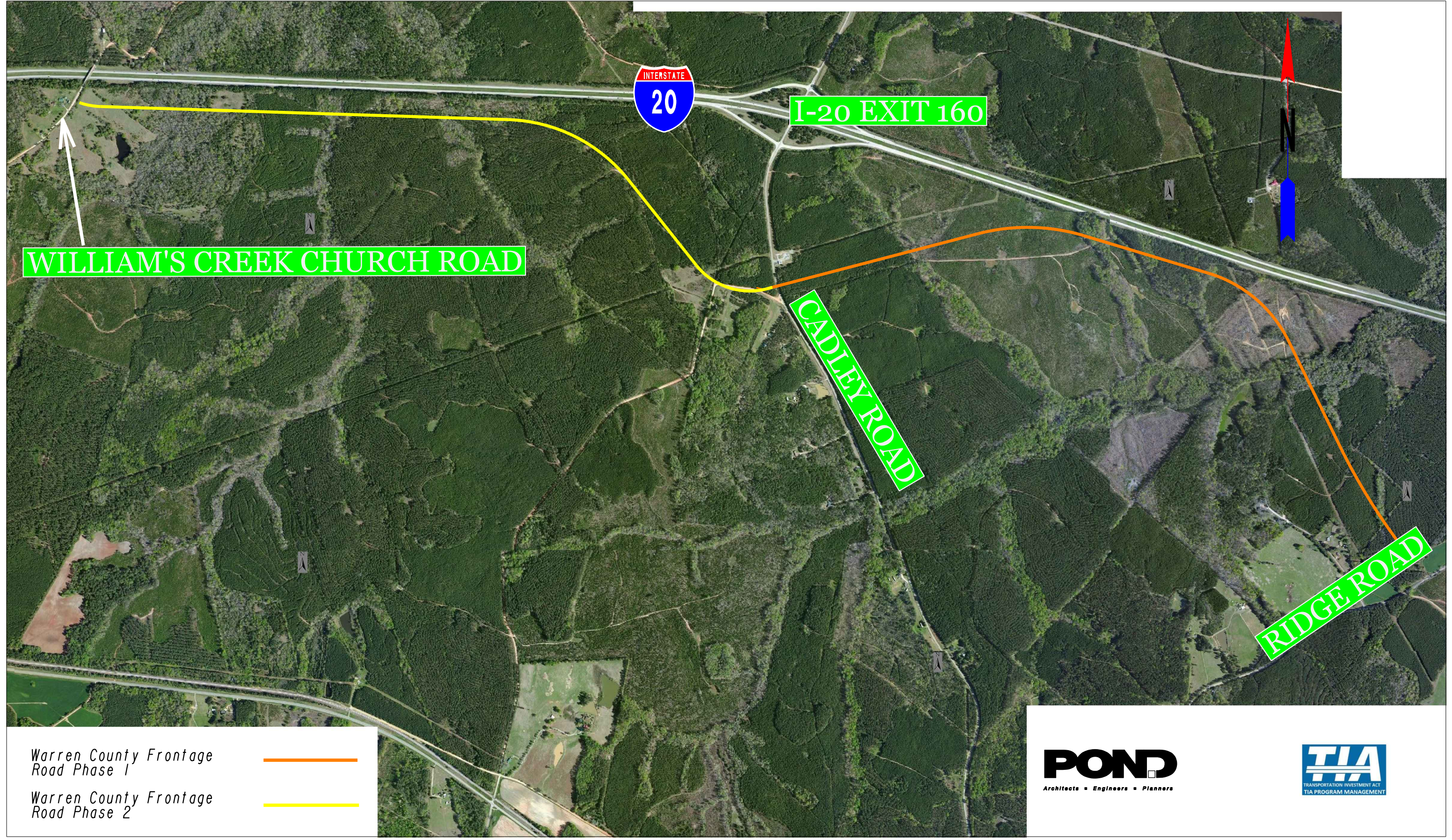
Approve:

Margaret B. Pickle
Chief Engineer

9/25/19
Date



I-20 FRONTAGE ROAD
WARREN COUNTY PHASE 2
TIA PROJECT PI NO. 0008680
CONCEPT ALIGNMENT
MAY 2019



WILLIAM'S CREEK CHURCH ROAD

I-20 EXIT 160

CADLEY ROAD

RIDGE ROAD

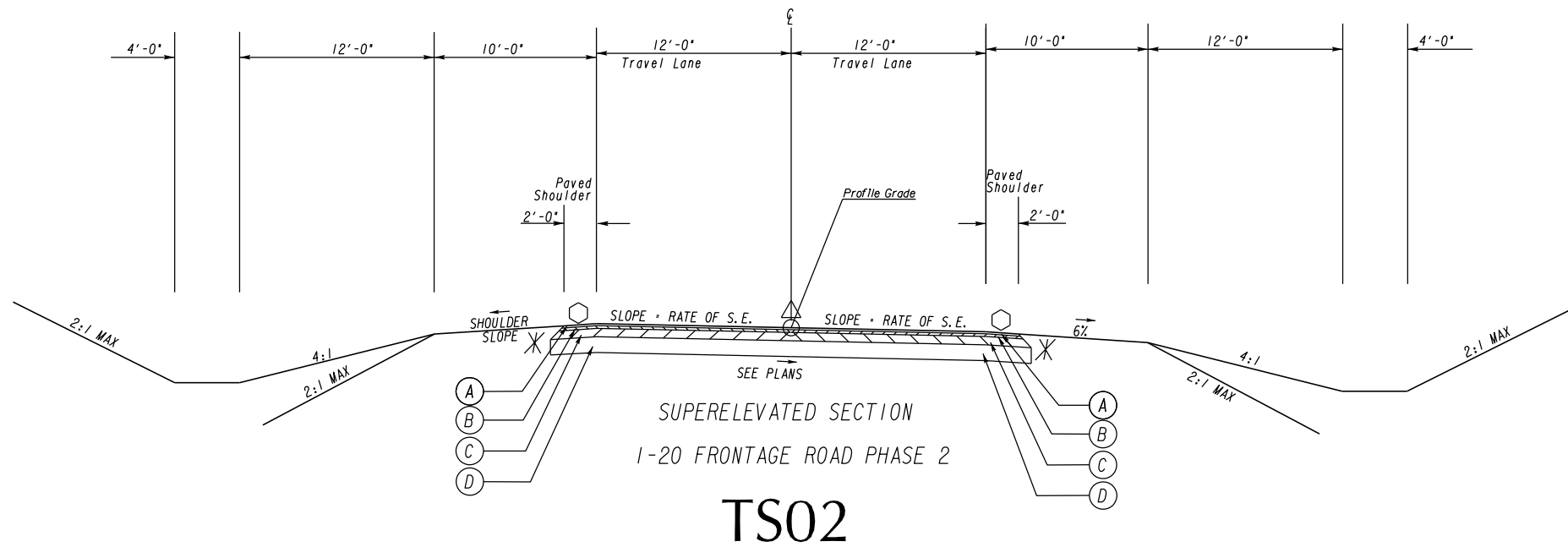
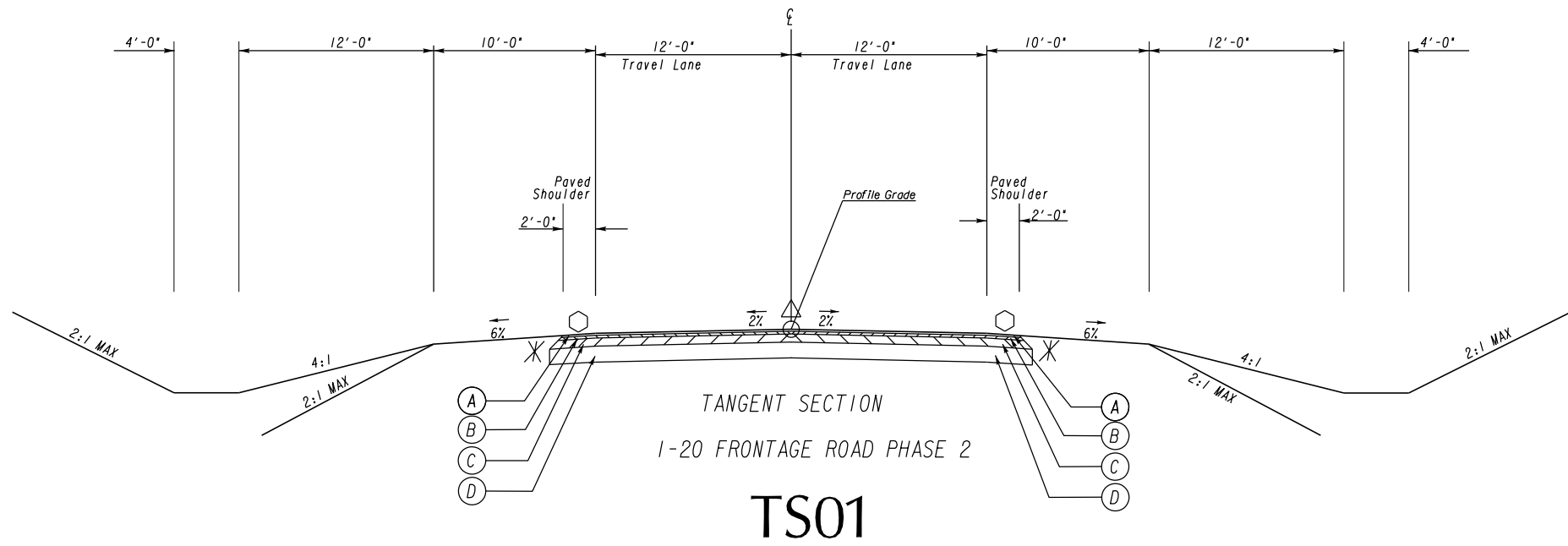
Warren County Frontage
Road Phase 1

Warren County Frontage
Road Phase 2

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TIA
TRANSPORTATION INVESTMENT ACT
TIA PROGRAM MANAGEMENT

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- (A) - RECYCLED ASPH CONC 9.5 mm SUPERPAVE, TYPE 11, BLEND 1, INCL BITUM MATL & H LIME - 135 LBS/SY
- (B) - RECYCLED ASPH CONC 19 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME - 220 LBS/SY
- (C) - RECYCLED ASPH CONC 25 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME - 330 LBS/SY
- (D) - GR AGGR BASE CRS, INCL MATL - 10 INCH DEPTH
- (E) - RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME

- ✕- SEE GDOT CONSTRUCTION DETAIL P-7
- △- CENTERLINE RUMBLE STRIPS
SEE GDOT CONSTRUCTION DETAIL T-24
- EDGE LINE RUMBLE STRIPS
SEE GDOT CONSTRUCTION DETAIL T-23A & T-25



NTS

REVISION DATES

TYPICAL SECTIONS

I-20 FRONTAGE RD PHASE 2 FROM
WILLIAMS CREEK CHURCH RD TO CADLEY RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

05-0001

TOTALS FOR JOB 0008680

ITEMS COST:	\$4,816,088.95
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$4,816,088.95
CONTINGENCY PERCENT:	0.00%
ENGINEERING AND INSPECTION:	0.00%
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$4,816,088.95

File Location: Div of Preconstruction > CES

CONFIDENTIALITY NOTICE: This document may contain confidential and/or privileged information. Any unauthorized duplication, disclosure,

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Detailed Cost Estimate

Time Processed: Sep-03-2019 02:48:00 PM

JOB NUMBER: 0008680 FED/STATE PROJECT NUMBER:
 SPEC YEAR: 13
 ITEM HISTORY: ALL 2018Q4 24MO
 DESCRIPTION: WARREN COUNTY PHASE 2
 ASSIGNED CONTROL GROUP: POND & CO. CONSULTANTS

ITEMS FOR JOB 0008680

10 - ROADWAY

Line Number	Item	Quantity	Units	Price	Description	Amount
0005	150-1000	1.00	LS	\$100,000.00000	TRAFFIC CONTROL - 0008680	\$100,000.00
0015	210-0100	1.00	LS	\$1,500,000.00000	GRADING COMPLETE - 0008680	\$1,500,000.00
0020	153-1300	1.00	EA	\$87,767.39632	FIELD ENGINEERS OFFICE TP 3	\$87,767.40
0025	310-1101	21590.00	TN	\$26.06988	GR AGGR BASE CRS, INCL MATL	\$562,848.71
0030	402-3102	2513.00	TN	\$97.53480	REC AC 9.5 MM SP,TPII, BL 1 INCL BM & HL	\$245,104.95
0035	402-3190	4077.00	TN	\$80.00894	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$326,196.45
0040	402-3121	6094.00	TN	\$80.97893	RECYL AC 25MM SP,GP1/2,BM&HL	\$493,485.60
0050	413-0750	3693.00	GL	\$2.14095	TACK COAT	\$7,906.53
0055	432-0205	156.00	SY	\$7.17000	MILL ASPH CONC PVMT/ 1.25 DEP	\$1,118.52
0060	634-1200	98.00	EA	\$120.91499	RIGHT OF WAY MARKERS	\$11,849.67
0065	446-1100	593.00	LF	\$8.75144	PVMT REF FAB STRIPS, TP2,18 INCH WIDTH	\$5,189.60
0070	641-1200	6671.00	LF	\$17.92240	GUARDRAIL, TP W	\$119,560.33
0075	641-5001	12.00	EA	\$1,288.91030	GUARDRAIL ANCHORAGE, TP 1	\$15,466.92
0080	641-5015	10.00	EACH	\$2,911.95269	GUARDRL ANCHOR, TP 12A, 31 IN, TANG, E/A	\$29,119.53
0099	456-2020	4.50	GLM	\$640.27619	INDENT, EDG LN RUMB STRP -GND-IN-PL(CON)	\$2,881.24
0100	456-2025	2.54	GLM	\$1,043.87729	INDNT, CNTR LN RUM STRP - GND-IN-PL(CON)	\$2,651.45
ROADWAY Total						\$3,511,146.90

20 - DRAINAGE

Line Number	Item	Quantity	Units	Price	Description	Amount
0085	603-2182	797.00	SY	\$52.23062	STN DUMPED RIP RAP, TP 3, 24	\$41,627.80
0090	603-2036	780.00	SY	\$100.82582	STN DUMPED RIP RAP, TP 1, 36	\$78,644.14
0095	603-7000	1577.00	SY	\$4.14507	PLASTIC FILTER FABRIC	\$6,536.78
0270	500-3002	615.00	CY	\$797.76263	CL AA CONCRETE	\$490,624.02
0275	500-3800	110.00	CY	\$1,091.19351	CL A CONC, INCL REINF STEEL	\$120,031.29
0280	511-1000	63311.00	LB	\$0.99870	BAR REINF STEEL	\$63,228.70
0285	207-0203	322.00	CY	\$57.82017	FOUND BK FILL MATL, TP II	\$18,618.09
0290	550-1600	720.00	LF	\$199.00000	STM DR PIPE 60,H 1-10	\$143,280.00
0295	550-2180	682.00	LF	\$32.90481	SIDE DR PIPE 18,H 1-10	\$22,441.08
0300	550-3418	22.00	EA	\$445.05491	SAFETY END SECTION 18,SD,4:1	\$9,791.21
DRAINAGE Total						\$994,823.11

30 - SIGNING AND MARKING

Line Number	Item	Quantity	Units	Price	Description	Amount
0105	653-2501	4.50	LM	\$2,323.77743	THERMO SOLID TRAF ST, 5 IN, WH	\$10,457.00
0110	653-2502	2.54	LM	\$2,164.02433	THERMO SOLID TRAF ST, 5 IN YE	\$5,496.62
0115	653-3501	300.00	GLF	\$0.40835	THERMO SKIP TRAF ST, 5 IN, WHI	\$122.51
0120	653-1704	72.00	LF	\$7.16822	THERM SOLID TRAF STRIPE,24,WH	\$516.11
0125	653-3502	10127.00	GLF	\$0.41822	THERMO SKIP TRAF ST, 5 IN, YEL	\$4,235.31
0130	653-0120	20.00	EA	\$82.83674	THERM PVMT MARK, ARROW, TP 2	\$1,656.73
0135	653-0130	4.00	EA	\$135.02928	THERM PVMT MARK, ARROW, TP 3	\$540.12
0140	653-0210	10.00	EA	\$163.56895	THERM PVMT MARK, WORD , TP 1	\$1,635.69
0145	654-1001	552.00	EA	\$4.10192	RAISED PVMT MARKERS TP 1	\$2,264.26
0150	654-1003	25.00	EA	\$4.37412	RAISED PVMT MARKERS TP 3	\$109.35
0155	653-6006	100.00	SY	\$5.43617	THERM TRAF STRIPING, YELLOW	\$543.62
0160	636-1033	48.00	SF	\$17.80150	HWY SIGNS, TP1MAT,REFL SH TP 9	\$854.47
0165	636-1036	90.00	SF	\$19.13801	HWY SGN,TP1MAT,REFL SH TP 11	\$1,722.42
0170	636-2070	160.00	LF	\$9.35698	GALV STEEL POSTS, TP 7	\$1,497.12
SIGNING AND MARKING Total						\$31,651.33

40 - TEMPORARY EROSION CONTROL

Line Number	Item	Quantity	Units	Price	Description	Amount
0175	163-0232	12.00	AC	\$426.02353	TEMPORARY GRASSING	\$5,112.28
0180	163-0240	260.00	TN	\$158.97345	MULCH	\$41,333.10
0185	643-8200	4597.00	LF	\$1.90933	BARRIER FENCE (ORANGE), 4 FT	\$8,777.19
0190	163-0300	2.00	EA	\$1,908.54644	CONSTRUCTION EXIT	\$3,817.09
0195	163-0527	258.00	EA	\$377.16901	CNST/REM RIP RAP CKDM,STN P RIPRAP/SN BG	\$97,309.60
0200	165-0010	727.00	LF	\$0.86880	MAINT OF TEMP SILT FENCE, TP A	\$631.62
0205	165-0030	902.00	LF	\$1.18942	MAINT OF TEMP SILT FENCE, TP C	\$1,072.86
0215	165-0101	2.00	EA	\$738.40482	MAINT OF CONST EXIT	\$1,476.81

Line Number	Item	Quantity	Units	Price	Description	Amount
0220	171-0010	1454.00	LF	\$2.37644	TEMPORARY SILT FENCE, TYPE A	\$3,455.34
0225	171-0030	1805.00	LF	\$3.74250	TEMPORARY SILT FENCE, TYPE C	\$6,755.21
0235	700-7000	46.00	TN	\$9.43731	AGRICULTURAL LIME	\$434.12
0240	700-8000	7.00	TN	\$638.48530	FERTILIZER MIXED GRADE	\$4,469.40
0245	700-8100	1150.00	LB	\$2.13171	FERTILIZER NITROGEN CONTENT	\$2,451.47
0250	711-0100	8940.00	SY	\$3.79255	TURF REINFORCING MATTING, TP 1	\$33,905.40
0255	716-2000	28140.00	SY	\$0.96643	EROSION CONTROL MATS, SLOPES	\$27,195.34
0260	167-1000	6.00	EA	\$219.80542	WATER QUALITY MONITORING AND SAMPLING	\$1,318.83
0265	167-1500	18.00	MO	\$576.28633	WATER QUALITY INSPECTIONS	\$10,373.15
TEMORARY EROSION CONTROL Total						\$249,888.81

50 - PERMANENT EROSION CONTROL

Line Number	Item	Quantity	Units	Price	Description	Amount
0210	165-0041	2146.00	LF	\$2.96119	MAINT OF CHECK DAMS - ALL TYPES	\$6,354.71
0230	700-6910	23.00	AC	\$966.26472	PERMANENT GRASSING	\$22,224.09
PERMANENT EROSION CONTROL Total						\$28,578.80

Interoffice Memo

FILE

PI NUMBER	0008680	PROJECT DESCRIPTION	I-20 Frontage Road from William's Creek Church Road to Cadley Road/CR 185
OFFICE	TIA		
DATE	Wednesday, August 28, 2019		

From: Daniel Sabia, PE

To: Erik Rohde, P.E., State Project Review Engineer
via email Mailbox: CostEstimatesandUpdates@dot.ga.gov

Subject: REVISIONS TO PROGRAMMED COSTS

Project Manager:	Eric Wilkinson
Management Let Date:	9/15/2022
Management Right of Way Date:	9/14/2021

Summary of Programmed Costs and Proposed Revised Costs:


Estimate Type	Programmed Costs (T-Pro Without Inflation)	Last Estimate Date	Revised Cost Estimate
CONSTRUCTION	\$9,560,000.00	01/06/2019	\$6,087,756.66
RIGHT OF WAY	\$984,000.00	01/06/2019	\$380,000.00
UTILITIES	N/A	N/A	\$316,000.00

Explanation for Cost Increase and Contingency Justification:

Attachments:

Interoffice Memo

Design Phase Leader Validation of Final QC/QA for Construction Cost Estimate Used In This Revision to Programmed Costs:

Consultant Company or GDOT Design Office:	Pond and Company
Printed Name:	Daniel Sabia
Title:	Project Manager
Signature:	
Date:	8/28/2019

[illegible]

GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 2/15/2019

Project: N/A

Revised:

County: WARREN

PI: 8680

Description: I-20 Frontage Road Phase 2
Project Termini: New Location Roadway

Existing ROW: Varies

Parcels: 10

Required ROW: Varies

Land and Improvements \$143,250.00

Proximity Damage \$0.00

Consequential Damage \$7,500.00

Cost to Cures \$0.00

Trade Fixtures \$0.00

Improvements \$0.00

Valuation Services \$37,500.00

Legal Services \$81,750.00

Relocation \$30,000.00

Demolition \$0.00

Administrative \$87,500.00

TOTAL ESTIMATED COSTS \$380,000.00

TOTAL ESTIMATED COSTS (ROUNDED) \$380,000.00

Prepared By: Cheryl H. Brewer *Cheryl H. Brewer* 2/15/19
Print Name Signature Date

Cost Estimation Supervisor: *Valencia Carter* *Valencia Carter* 2/15/19
Print Name Signature Date

NOTE: Supervisor is only attesting that the estimate was completed using the correct information provided for the the project. The Supervisor is not attesting to property values or the accuracy of the market value estimations provided in this report. No Market Appreciation is included in this Preliminary Cost Estimate.

Comments:

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

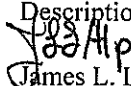
INTERDEPARTMENT CORRESPONDENCE

FILE

Project No: CSMSL-0008-00(680)
County Warren
P.I.# 0008680

Office: District 2 - Tonnille
Date: January 22, 2019

Description: *I-20 Frontage Road from Williams Creek Church Road to Cadley Road - Phase II - TIA*

FROM  James L. Lindsey, District Utilities Manager

TO Eric Wilkinson, Project Manager

SUBJECT **PRELIMINARY UTILITY COST ESTIMATE**

A review of utilities located on the above referenced project has been conducted without a design concept. Listed below is a breakdown of the anticipated reimbursable and non-reimbursable cost.

<u>Utility Owner</u>		<u>Reimbursable</u>	<u>Non-Reimbursable</u>	<u>Estimate Based on</u>
Jefferson Energy Cooperative		\$66,000.00	\$0.00	Site Visit / Available Drawings
Dixie Pipeline Company		\$250,000.00	\$0.00	Site Visit / Available Drawings
AT&T		\$0.00	\$3,000.00	Site Visit / Available Drawings
Total	100.00%	\$316,000.00	\$3,000.00	
Department Responsibility	0.00%	\$0.00		
Local Sponsor Responsibility	100.00%	\$316,000.00		PFA Dated N/A with N/A

Estimate is based on the best available information at the current stage, unforeseen prior rights information may be provided by the Utility Company at a later date that could cause some non-reimbursable costs to shift to the reimbursable cost column.

All information pertaining to Dixie Pipeline Company was provided by Chris Robertson, Field Engineering Manager and any information pertaining to AT&T was provided by Jeff Surrency, Resource Manager.

If additional information is needed, please contact Tonia Parker at 478-553-3386.

cc: Patrick Allen, State Utilities Administrator
Yulonda Pride-Foster, State Utilities Preconstruction Manager
Sean Shepherd, Designer - Pond Company
Todd Price, District Preconstruction Engineer
Jeffery Brown, Area Manager
File

Date: 05/29/2019

Warren County Frontage Road Phase II

404 Mitigation Cost Estimate

	Streams		Wetlands
	178		2232
	333		2824
	50		2224
	176		101
	180		540
	222		
	440		
Total	1579		7921
		Acres	0.181841

Sum of Factors (assumes generally worst case)	4.5	Sum of r factors	7
Total Mitigation Credits	7105.5		1.272888

Cost per credit based on Phase 1	\$90.00	\$40,000.00
Mitigation Cost	\$639,495.00	\$50,916.00

Total \$690,411.00
Contingency 16%

Total \$800,877

TRAFFIC ENGINEERING REPORT

For I-20 Frontage Road Phase II (new location)
from CR 21/Williams Creek Church Road
to CR 185/Cadley Road

Warren County, Georgia

GDOT Project No. PI#0008680

PREPARED FOR:

Georgia Department of Transportation

PREPARED BY:



Architects ■ Engineers ■ Planners

Pond & Company
3500 Parkway Lane, Suite 500
Peachtree Corners, GA 30092
www.pondco.com
678.336.7740

May 2019

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- A. Figures
 - Figure 1: Location Map (region)
 - Figure 2: Location Map (aerial)
 - Figure 3: Transportation Recommendations
- B. Traffic Forecasting Report approved by GDOT Office of Planning
- C. Intersection Traffic Volumes
- D. Capacity Analysis – Synchro Reports

INTRODUCTION

1 - Introduction

The purpose of this traffic study is to analyze traffic operations and make recommendations to accommodate projected future traffic volumes. Recommendations for the project include locations for turn lanes and storage lengths, and appropriate traffic control (i.e. stop-control, traffic signal, roundabout) at intersections. Recommendations for pedestrian and bicycle improvements are included where appropriate.

1.1 Project Scope

The project consists of the construction a two-lane roadway on new location along the south side of I-20 from Cadley Road/CR 184 to Williams Creek Church Rd. The project is in a rural area of Warren County. The roadway will provide sufficient infrastructure to serve future development. Future development is expected to consist of commercial and light industrial/distribution facilities. The TIP project number is RC07-000159. **Figure 1 and Figure 2** illustrate the project location.

The project length is approximately 2.26 miles long. The roadway will parallel I-20 to the north. There are no intermediate intersections. The proposed typical section consists of two 12-foot lanes and 10-foot rural shoulders within a 100-foot right-of-way. The exact tie-in locations for the proposed road has been specified and shown in **Figure 3**. The eastern tie-in location is north of the Charles Ray Rd intersection, and will align with the Phase 1 frontage road. The western tie-in location will be a new intersection with Williams Creek Church Road. It is important to note the intersection at Cadley Road has been designed and included in the Frontage Road Phase 1 project. The intersection will consist of dedicated left-turn lanes and right-turn lanes along Cadley Road in both the northbound and southbound directions. The two Frontage Road approaches (both westbound and eastbound) will consist of a shared left/through lane and separate right-turn lane, with stop-control.

The traffic forecasts for the project are being updated to accompany the revised project concept report. The previous project (PI# 0007534) included the construction of the frontage road for Phase I & II. Phase 1 of the frontage road is now GDOT PI#0010844, from Cadley Road to Ridge Road. Separately, traffic projections and a TE Report were prepared for Phase 1. GDOT approved the traffic forecasting for PI#0010844 in May 2017.

This traffic engineering report was prepared for Phase 2 of the project – PI #0008688.

1.2 Study Intersections

Existing intersections which were analyzed and included in the traffic diagrams are:

1. CR 185/Cadley Road at intersection with Frontage Road
2. CR 21/Williams Creek Church Rd at intersection with Frontage Road

Existing intersections which were analyzed and only included in the TE Report are:

3. CR 185/Cadley Road at I-20 Westbound Ramps
4. CR 185/Cadley Road at I-20 Eastbound Ramps

STUDY METHODOLOGY

2 – Study Methodology

The methodology used for evaluating traffic operations at intersections is based on the criteria established in the *2010 Highway Capacity Manual, 2010 edition*. The *Synchro Studio 9* software, which utilizes the HCM 2010 methodology, was utilized to perform the analyses.

Capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a specified period under prevailing roadway, traffic, and control conditions. Level of service is used to describe the operating characteristics of a road segment or intersection in relation to its capacity. LOS is defined as a qualitative measure that describes operational conditions and motorists perceptions. The Highway Capacity Manual defines six levels of service, LOS A through LOS F. Level of service A indicates excellent operations with little delay to motorists, while level of service F indicates extremely long delay.

Level of service for unsignalized intersections is calculated for the average controlled delay incurred for vehicles on the stop controlled approach. Controlled delay for unsignalized intersections includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, including the availability of gaps in the cross-street traffic, and acceptable gap time to make the movement from the stop position. The level-of-service criteria for two-way stop-controlled, all-way stop-controlled, and roundabout intersections is presented in **Table 1A**. For stop-controlled intersections, LOS E and F exist when there are insufficient gaps in traffic, resulting in long delays. Low level of service for stop-controlled approaches are not uncommon at major cross-streets.

Table 1A Level of Service Summary Criteria for Unsignalized Intersections	
LOS	Average Delay (seconds)
A	<= 10
B	> 10 and <= 15
C	> 15 and <= 25
D	> 25 and <= 35
E	> 35 and <= 50
F	> 50

Source: 2010 Highway Capacity Manual

Level-of-service at signalized intersections is defined in terms of average controlled delay per vehicle. Controlled delay for vehicles includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The level-of-service criteria for signalized intersections is presented in **Table 1B**. Level-of-service “E” is typically considered to be the limit of acceptable delay.

Table 1B Level of Service Summary Criteria for Signalized Intersections	
LOS	Average Delay (seconds)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Source: 2010 Highway Capacity Manual

The methodology used for evaluating traffic operations at roundabouts included the GDOT Roundabout Analysis Tool and SIDRA software, as appropriate. The GDOT Roundabout Tool utilizes the HCM 2010 methodology to calculate capacity, delay, queues, and volume to capacity for roundabout approaches.

EXISTING FACILITY CONDITIONS

3 - Existing Facility Conditions

3.1 – Roadway Conditions

A summary of existing site conditions is as follows:

- The area is rural with little existing development. The roadway will cross undeveloped land and provide access to large parcels of land.
- Williams Creek Church Road is a dirt road/access driveway with daily volumes less than 50 vehicles per day. GDOT classifies the road as a Local Road. Williams Creek Church Road crosses over I-20. To the south is SR 278/Atlanta Highway.
- Cadley Road is an existing two-lane roadway. GDOT classifies the road as a Major Collector. Cadley Road has an interchange with I-20 (Exit 160) to the north. To the south is the town of Norwood.

3.2 – Accident Review

Crash records were searched from GDOT's GEARS database. Accidents for a five-year period (2014-2018) were reviewed.

Along Cadley Road near the intersection of Charles Ray Road, only one accident was reported. In 2014 a single vehicle crash occurred when the vehicle left the road and hit a fence during daylight.

TRAFFIC DATA COLLECTION AND TRAFFIC FACTORS

4 – Traffic Data Collection and Traffic Factors

Pond collected traffic counts for use in the traffic analysis. Traffic counts consisted of 48-hour bi-directional volume counts with vehicle classification data at two locations. Peak period turning movement counts at the two I-20 interchange ramp terminals with Cadley Road were previously collected for the Frontage Road Phase 1 project during the AM and PM peak periods.

Data from the two bi-directional volume counts provided the k-factors, directional factors, and truck percentages for the area roads. Typical traffic factors were calculated for both the raw traffic counts and the Existing 2019 traffic flow diagrams. The average peaking (K-Factor), which is the ratio of hourly traffic to daily traffic during the peak hour, is reported for both AM and PM periods. The directional factor (D-Factor) identifies the extent of the directionality of traffic during the peak hour. Directional factors range between 50-100 and a factor of 50 indicates that there is an even split between each direction of travel. A D-Factor is reported for both peak hours of the day, as well as daily. The traffic volume data is summarized in Table 3 of the Traffic Data Report memo. The memo is included in the appendix.

Vehicle classification counts were conducted as part of the data collection effort. The FHWA classifies vehicles into 13 separate groupings, based on the number of wheels and axles. In concurrence with the *GDOT Design Traffic Forecasting Manual, Rev 1.0*, the FHWA classifications are summarized into three categories: Personal Vehicles, Single-Unit Trucks, and Combination-Unit Trucks. The percent of traffic made up by Single-Unit and Combination-Unit trucks during each peak hour, as well as for the day, are summarized in Table 4 of the Traffic Data Report memo. The memo is included in the appendix.

FUTURE TRAFFIC CONDITIONS

5 – Future Traffic Conditions

5.1 - Traffic Flow Diagrams

Pond developed traffic flow diagrams for the years and conditions listed below. The traffic flow diagrams were prepared in accordance with the requirements in the GDOT 2018 Design Traffic Forecasting Manual, version 1.3. The memorandums and approvals between Pond and GDOT's Office of Planning are included in the Traffic Forecasting Report in the appendix. Please refer to this report for details.

Traffic flow diagrams were completed for the following scenarios. All future year diagrams were prepared for the "Build" conditions; which included the project improvements) and the "No-Build" scenarios (which included no improvements). The traffic volumes from the flow diagrams were utilized in the traffic analysis along the corridor.

Traffic Diagrams						
Sheet Number	Year	Case	Period		No-Build	Build
			DHV	ADT		
10-0001,0002	2015	Existing	X	X		
10-0003,0004	2024	Base	X	X		X
10-0005,0006	2026	Plus 2 Base	X	X		X
10-0007,0008	2044	Design	X	X		X
10-0009,0010	2046	Plus 2 Design	X	X		X
10-0011,0012	2044	Design	X	X	X	
10-0013,0014	2046	Plus 2 Design	X	X	X	

5.2 – Future Projected Traffic Volumes

From the traffic projections, effort future year AADT are calculated for use in the project concept report. The AADT for the corridor at the highest volume location (just west of the Cadley Road intersection) is estimated to be:

- 2,100 AADT during the 2044 Design Year
- The associated traffic factors are: K = 12.6%, D = 0.5

5.3 – Future No-Build Conditions

The Design Year No-Build conditions assume the new frontage road (Phase 2) and associated development would not be constructed. The Design Year no-build conditions analysis includes the new frontage road (Phase 1), intersection geometric changes at CR 185/Cadley Road, and associated development. Development traffic anticipated along the Frontage Road (Phase 1) was based on information from the TE Report prepared for PI #0010844.

5.4 – Future Build Conditions Analysis

The build conditions analysis included the new frontage road (Phase 2) and associated improvements. Additionally, all geometric improvements (i.e. turn lanes, traffic control) listed in the recommendations section were included in the analysis results.

FUTURE TRAFFIC CONDITIONS

The new frontage road (Phase 1 and 2) is not expected to handle traffic in the opening year until development occurs along the new frontage road. Since the new location road will provide the transportation infrastructure to serve potential new development, future trips associated with new development are accounted for in the design year, Build conditions analysis.

The Development Authority of Warren County provided an estimate of development that could occur at full buildout of the developable land. Warren County provided a letter and email (attached) explaining their development expectations. The county foresees one of two scenarios could occur. For the purposes of projecting traffic for the 20-year horizon year, a portion of the expected development in Scenario 2 was utilized. Scenario 2 envisions 4-5 companies locate facilities of various sizes, which could include distribution, warehouse, or light/heavy industrial facilities.

The future trips associated with these facilities was estimated based on ITE's Trip Generation Manual (10th Edition). Trip generation was performed based on development intensity for daily, AM peak hour, and PM peak hour periods. **Table 2** summarizes the estimated trip generation for developments along the frontage road. For the flow diagrams traffic from the developments was based on 2,200 daily trips, 280 AM peak hour trips, and 280 PM peak hour trips. See the traffic forecasting report for additional information.

TABLE 2 - TRIP GENERATION Phase 2 Frontage Road Potential Development										
Land Use		Units	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
				Two-way	Total	In	Out	Total	In	Out
140	Manufacturing	SF	275,000	1,029	171	132	39	168	52	116
150	Warehousing	SF	700,000	1,152	109	84	25	112	30	82
Gross Trips				2,181	280	216	64	280	82	198
New Development Trips for Balanced Flow Diagrams				2,200	280	215	65	280	80	200

Notes: Trip Generation Rates based on ITE Trip Generation, 10th Edition

Trips rounded for purposes of balanced flow diagrams calculations

CAPACITY ANALYSIS

6 – Capacity Analysis

Since the existing roadways Williams Creek Church Road and Cadley Road) are uninterrupted two-lane roads, and Charles Ray Rd is a side-street with stop-control with very low volumes, a capacity analysis was not performed. The existing two-way stop-controlled intersection (Cadley Road at Charles Ray Road) operates at a LOS A condition. Similarly, a No-Build condition analysis was not performed.

6.1 – Base (Opening) Year (2024) and Plus 2 Base (Opening) Year (2026)

Because the new frontage road would not be expected to handle traffic in the opening year until development occurs along the new frontage road, a capacity analysis was not performed for the study area intersections. The intersections at both ends of the new frontage road, operating under two-way stop-controlled conditions, are expected to operate at a LOS A condition. Similarly, a No-Build condition analysis was not performed.

6.2 – Design Year (2044) and Plus 2 Design Year (2046)

Capacity analysis was performed for the two intersections at both ends of the new frontage road, under two-way stop-controlled conditions. The results are presented in **Table 4** for the Design Year 2044.

Table 3: Design Year Intersection Capacity Analysis							
Intersection		Traffic Control	Approach	Design Year 2044			
				AM		PM	
				LOS	Delay	LOS	Delay
1	Cadley Road/CR 185 at Frontage road	Stop-Controlled	WB	B	11.0	B	10.6
		Stop-Controlled	EB	D	29.0	E	36.5
2	Williams Creek Church Rd at Frontage Road	Stop-Controlled	WB	A	8.8	A	8.7

Note: Delay reported is the average delay in seconds

6.3 – Capacity Analysis at the I-20 Interchange Ramps

Capacity analysis was performed for the two intersections at the I-20 ramp terminals for the Existing Year (2017) and Design Year (2044) for both No-Build and Build conditions. The year 2017 traffic volumes were available from the TE Report performed for PI #0010844. The No-Build conditions include the frontage road (Phase 1). The Build conditions include the frontage road (Phase2). The existing I-20 interchange ramp terminals are both unsignalized, stop-controlled with separate left-turn and right-turn lanes. The results are presented in **Table 5** for all analysis years.

CAPACITY ANALYSIS

Table 4: Capacity Results for I-20 Interchange at Cadley Road			
Analysis Period	Intersection	LOS (Delay in seconds)	
		AM peak hour	PM peak hour
Existing Year (2017)	I-20 WB Ramp at Cadley Road (stop-controlled)	B (13.1)	B (10.7)
	I-20 EB Ramp at Cadley Road (stop-controlled)	B (11.3)	B (11.5)
Design Year No-Build Conditions (2044)	I-20 WB Ramp at Cadley Road (stop-controlled)	B (11.8)	B (12.1)
	I-20 EB Ramp at Cadley Road (stop-controlled)	B (13.9)	B (11.9)
Design Year Build Conditions (2044)	I-20 WB Ramp at Cadley Road (stop-controlled)	B (14.6)	C (16.6)
	I-20 EB Ramp at Cadley Road (stop-controlled)	E (36.9)	B (12.9)

TRANSPORTATION RECOMMENDATIONS

7 – Transportation Recommendations

Based on GDOT's Regulations for Driveway and Encroachment Control Manual and the traffic analysis, recommendations for the new roadway include the following:

7.1 – Corridor

This section provides traffic-related recommendations for consideration for the corridor.

- Provide two travel lanes
- Provide rural shoulders

7.2 – Intersections

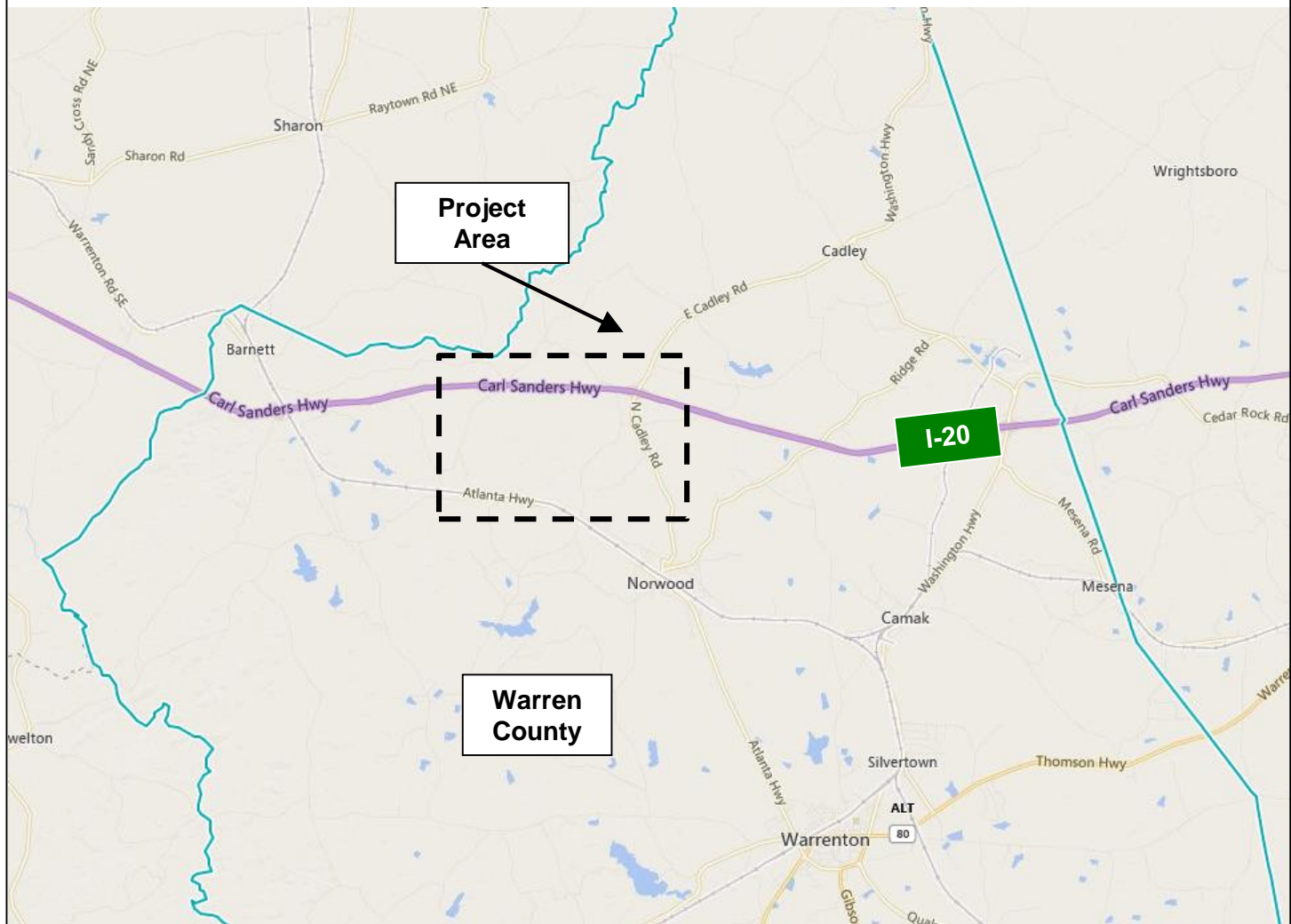
This section provides traffic-related recommendations for intersection traffic control, turn lane locations, and storage lengths. **Figure 3** illustrates the recommendations listed below. The recommendations were developed considering the GDOT guidelines.

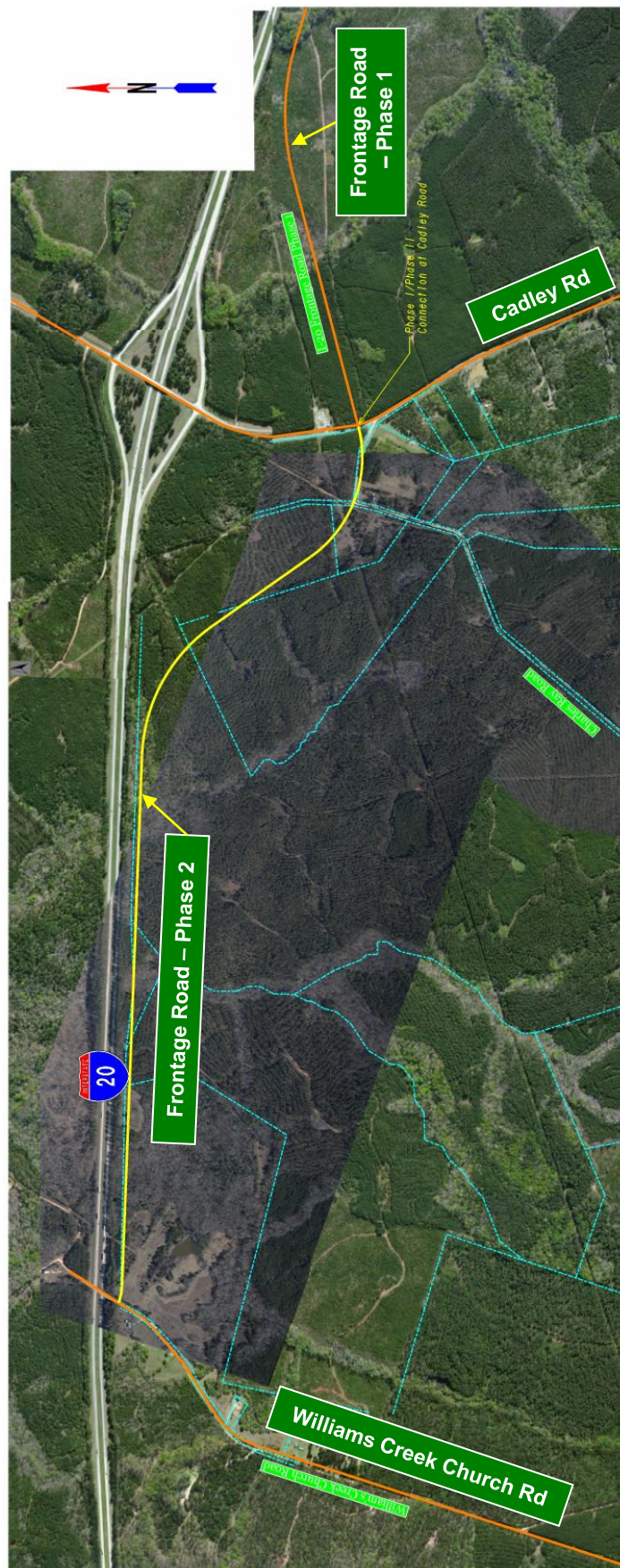
New Frontage Road at CR 21/Williams Creek Church Road

1. Westbound (Frontage Road) approach:
 - Single lane approach
2. Northbound (Williams Creek Church Rd) approach:
 - Single lane approach
3. Southbound (Williams Creek Church Rd) approach:
 - Single lane approach

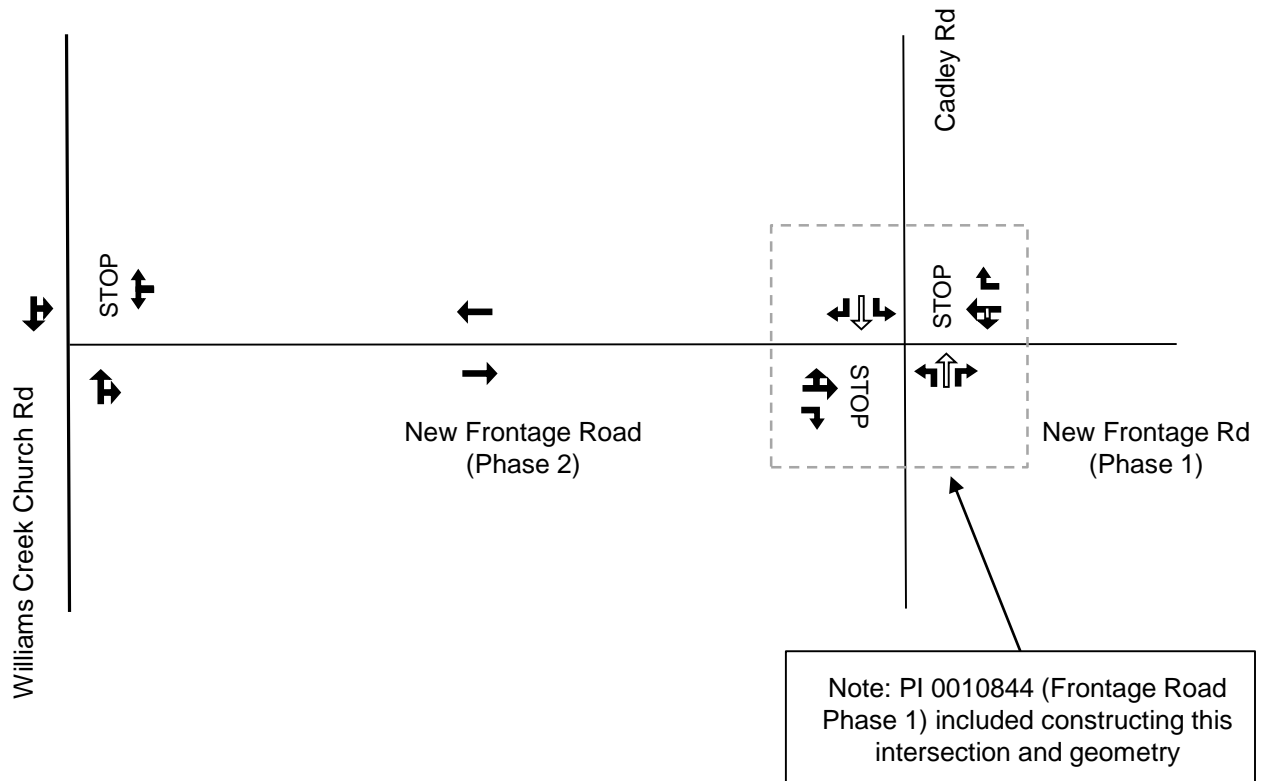
TE Report

Appendix A





Not to Scale



LEGEND	
	Existing Roadway Laneage
	Proposed Project Laneage

TE Report

Appendix B

TRAFFIC FORECASTING REPORT

For I-20 Frontage Road Phase II (new location)
from CR 21/Williams Creek Church Road
to CR 185/Cadley Road

Warren County, Georgia

GDOT Project No. PI#0008680

PREPARED FOR:

Georgia Department of Transportation

PREPARED BY:



Architects ■ Engineers ■ Planners

Pond & Company
3500 Parkway Lane, Suite 500
Peachtree Corners, GA 30092
www.pondco.com
678.336.7740

May 21, 2019

To: Georgia Department of Transportation, Office of Planning

From: Andrew Antweiler, P.E., Pond & Company

CC: Eric Wilkinson, TIA Regional Coordinator, GDOT Office of TIA
Daniel Sabia, P.E., Pond & Company

Date: May 21, 2019

Subject: **Traffic Forecasting Report**
GDOT Project No. PI#0008680
For I-20 Frontage Road Phase II (new location) from Williams Creek Church Road/CR 21
to Cadley Road/SR 185
Warren County

Summary

This memorandum summarizes the traffic forecasting process. Copies of the approved documents prepared by POND and reviewed by GDOT are included in the appendixes. Development of the future traffic diagrams did not result in any changes to the Traffic Data Report.

Appendix A

- Traffic Diagrams

Appendix B

- The Traffic Data Collection memo, dated October 29, 2018, was reviewed and approved by GDOT on November 14, 2018.

Appendix C

- The Traffic Data Report memo, dated March 5, 2019, was reviewed and approved by GDOT on March 5, 2019.

Appendix D

- The GDOT email approval of Traffic Data Collection Plan, dated November 11, 2018.
- The GDOT email approval of the Traffic Data Report, dated March 5, 2019.
- The GDOT approval letter of the Design Traffic Forecasts, dated May 6, 2019.

Appendix A

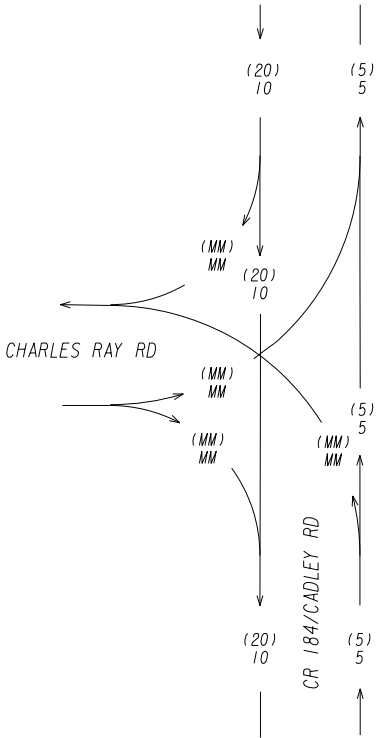
WILLIAMS CREEK CHURCH RD, SOUTH OF I-20

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SU= 100% [AM] 100% [PM]
COMB= 0.0% [AM] 0.0% [PM]



CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

PEAK HOUR TRUCK %
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SU= 7.0% [AM] 4.5% [PM]
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DESIGN TRAFFIC
2019 AM DHV = 000
2019 PM DHV = (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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BACKCHECKED:	DATE:	10-0001
CORRECTED:	DATE:	
VERIFIED:	DATE:	

P.I. NO. 0008680

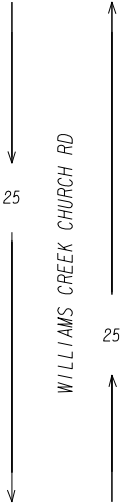
EXISTING 2019 DHV



WARREN COUNTY

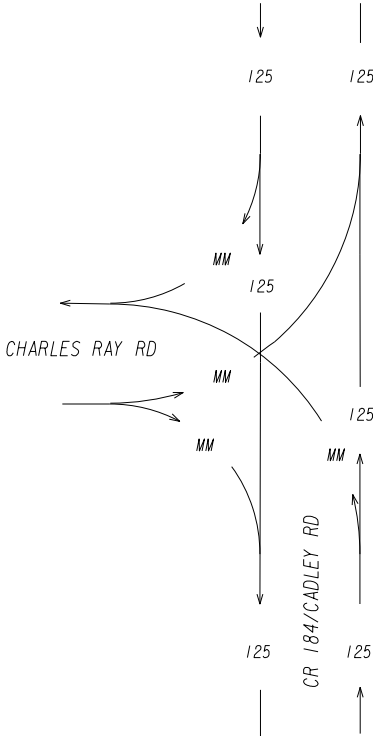
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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

24-HR TRUCK %
T=7.5%
SU=5.5%
COMB=2.0%



P.I. NO. 0008680

EXISTING 2019 AADT



WARREN COUNTY

REVISION DATES

3/5/19		

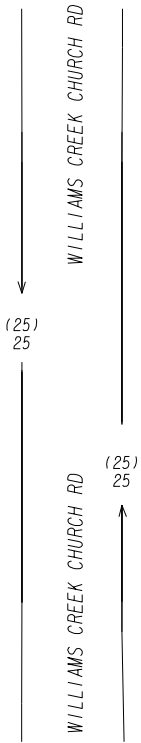
TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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VERIFIED:	DATE:	

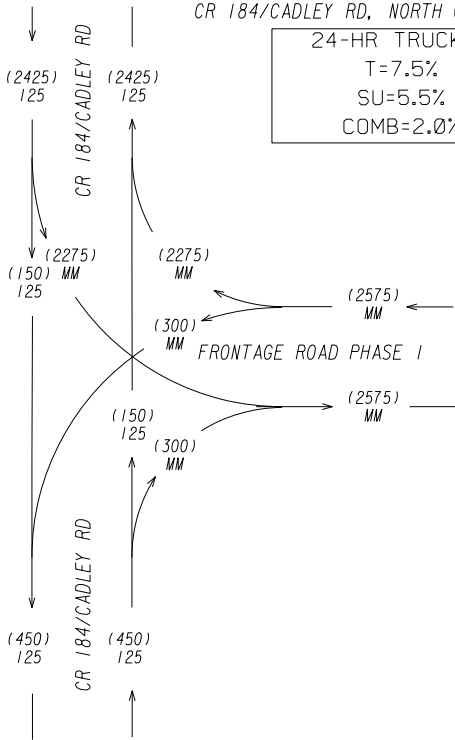
WILLIAMS CREEK CHURCH RD, SOUTH OF I-20

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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

24-HR TRUCK %
T=7.5%
SU=5.5%
COMB=2.0%



DESIGN/BASE TRAFFIC
2026 AADT= 000
2046 AADT= (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

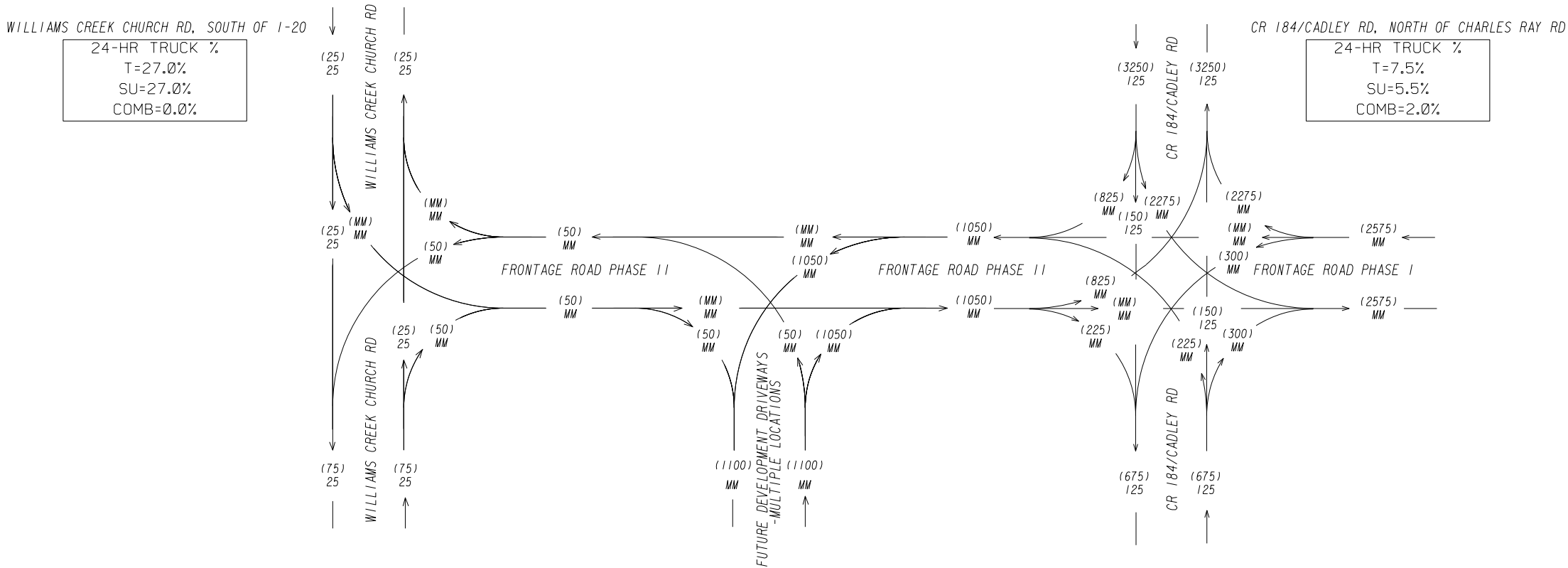
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P.I. NO. 0008680

No Build Conditions 2024/2044 AADT



WARREN COUNTY



P.I. NO. 0008680

Build Conditions 2024/2044 AADT



WARREN COUNTY

DESIGN/BASE TRAFFIC
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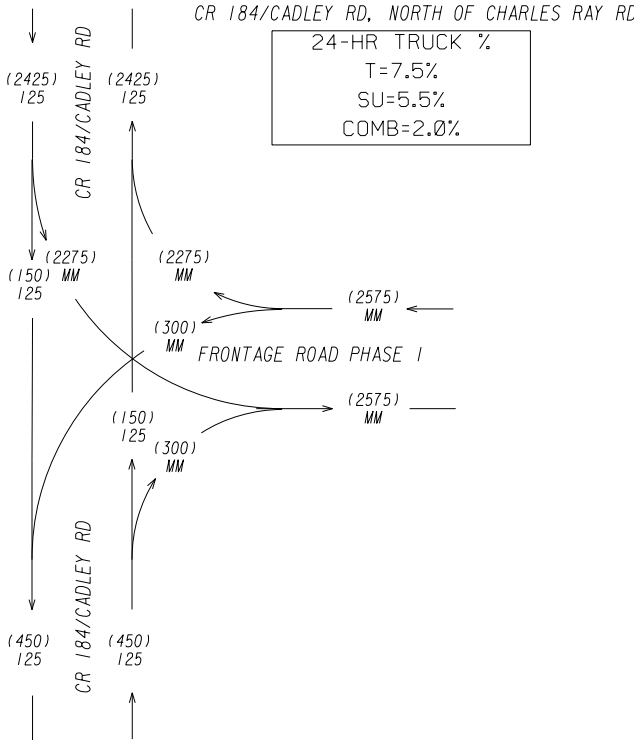
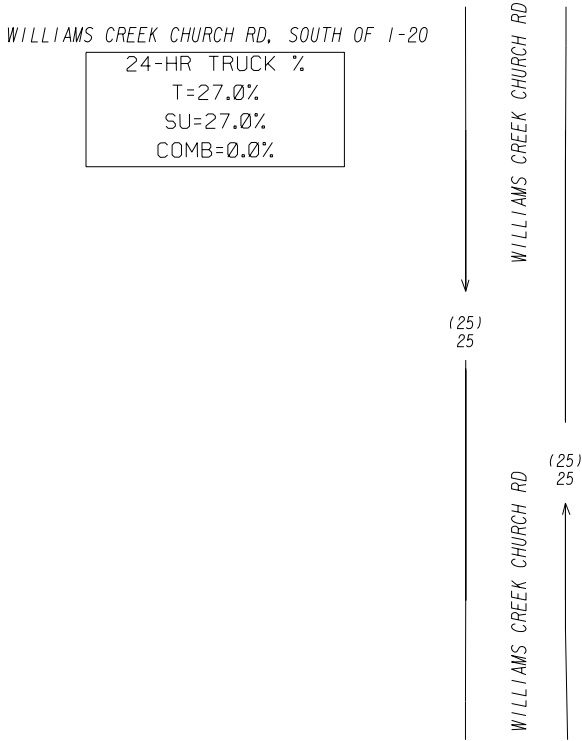
REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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CORRECTED:	DATE:	
VERIFIED:	DATE:	



DESIGN/BASE TRAFFIC
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2046 AADT= (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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P.I. NO. 0008680

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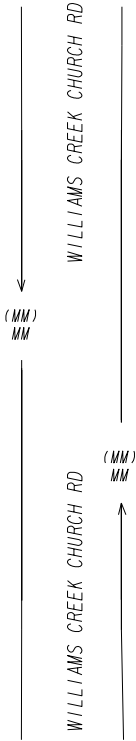


WARREN COUNTY



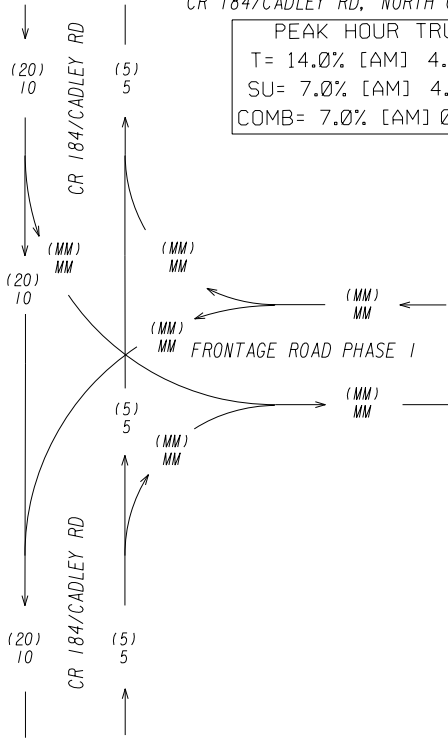
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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

PEAK HOUR TRUCK %
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SU= 7.0% [AM] 4.5% [PM]
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P.I. NO. 0008680

No Build Conditions 2024 DHV



WARREN COUNTY

DESIGN TRAFFIC
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REVISION DATES

3/5/19		

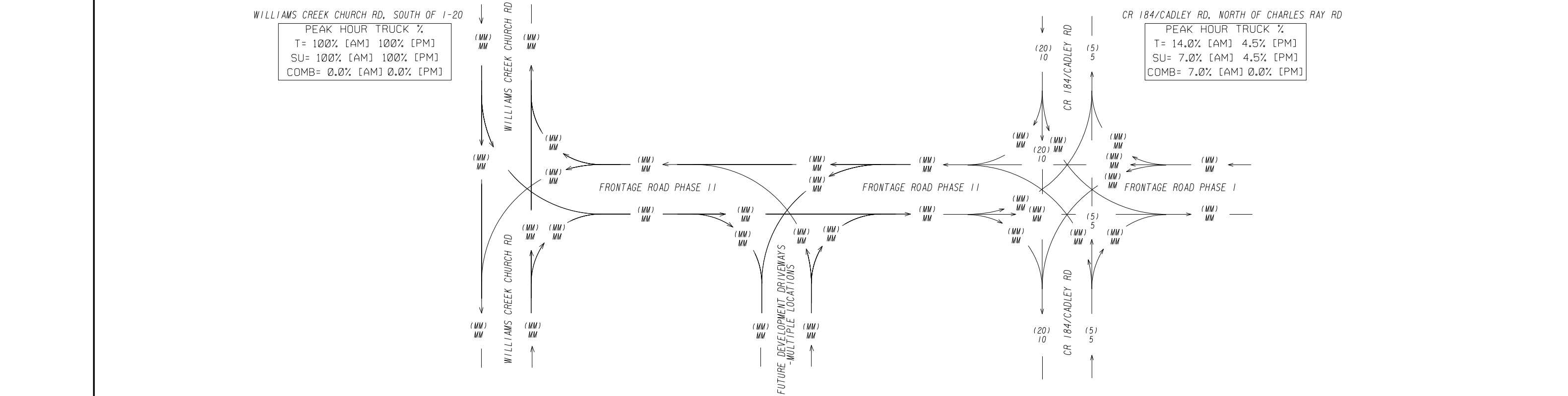
TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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CORRECTED:		DATE:	
VERIFIED:		DATE:	

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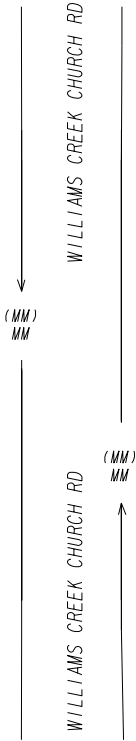
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P.I. NO. 0008680		Build Conditions 2024 DHV		<div>GDOTGeorgia Department of Transportation</div>		<div>POND Architects ■ Engineers ■ Planners</div>		WARREN COUNTY		DESIGN TRAFFIC 2024 AM DHV = 000 2024 PM DHV = (000)					
										REVISION DATES		TRAFFIC DIAGRAM			
										3/5/19		I-20 FRONTAGE ROAD FROM CADLEY RD TO WILLIAMS CREEK CHURCH RD			
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4/28/2016		GPLN										CORRECTED:		DATE:	
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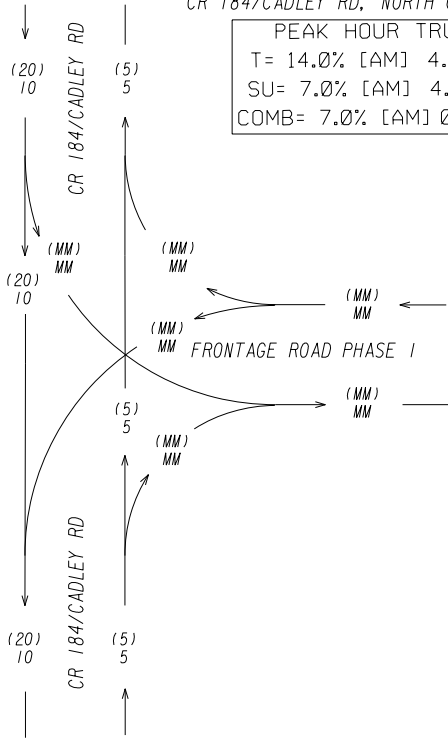
WILLIAMS CREEK CHURCH RD, SOUTH OF I-20

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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

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P.I. NO. 0008680

No Build Conditions 2026 DHV



WARREN COUNTY

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REVISION DATES

3/5/19		

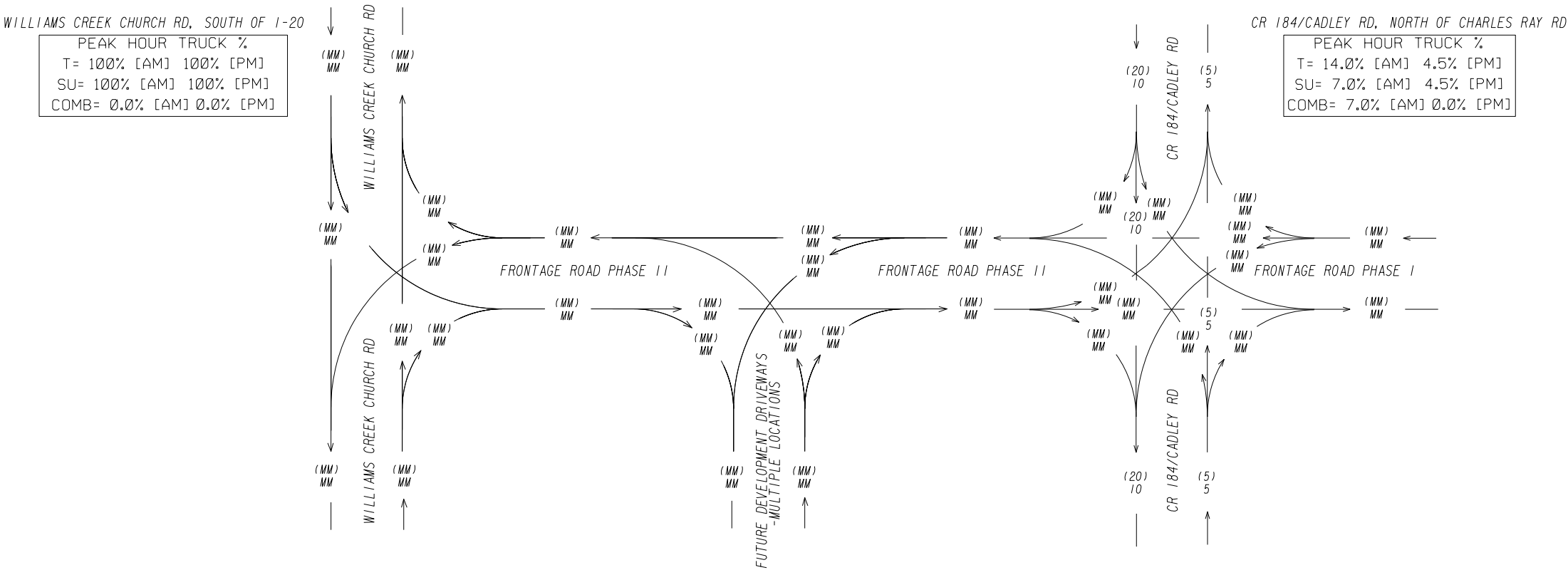
TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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DRAWING No.

10-0009



DESIGN TRAFFIC
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2026 PM DHV = (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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10-0010

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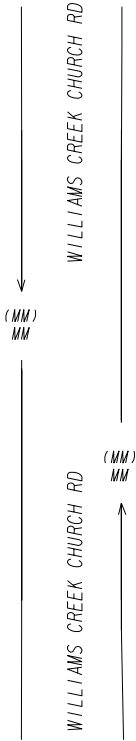
Build Conditions 2026 DHV



WARREN COUNTY

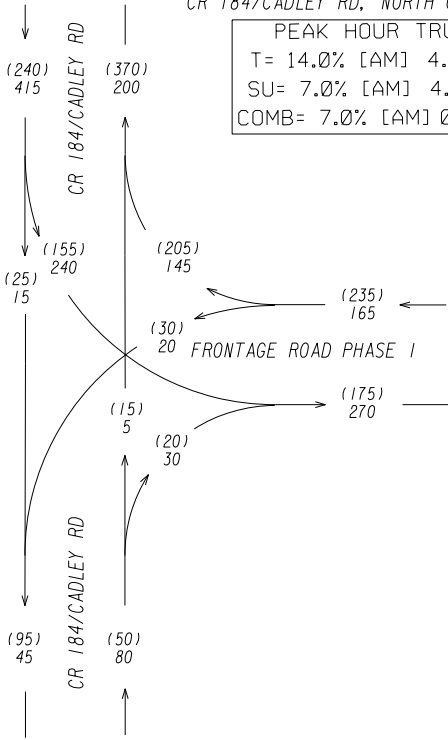
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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

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DESIGN TRAFFIC
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REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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VERIFIED:		DATE:		

10-0011

P.I. NO. 0008680

No Build Conditions 2044 DHV



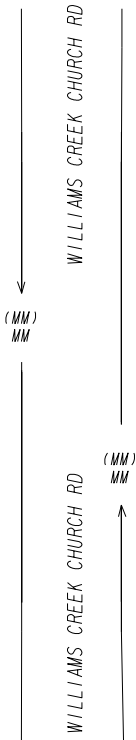
WARREN COUNTY



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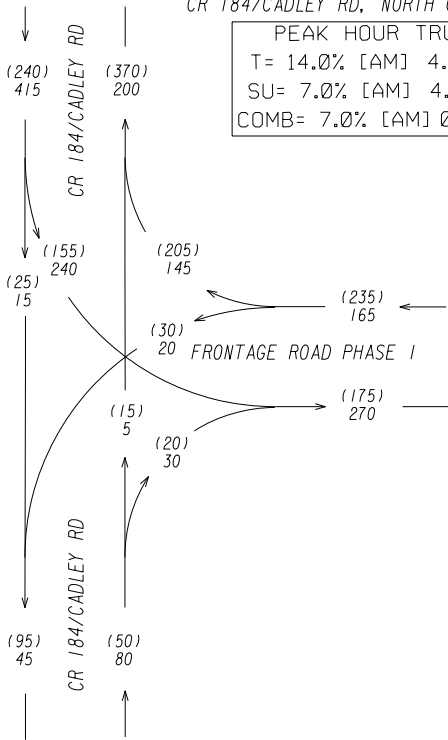
WILLIAMS CREEK CHURCH RD, SOUTH OF I-20

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CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

PEAK HOUR TRUCK %
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DESIGN TRAFFIC
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REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

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DRAWING No.

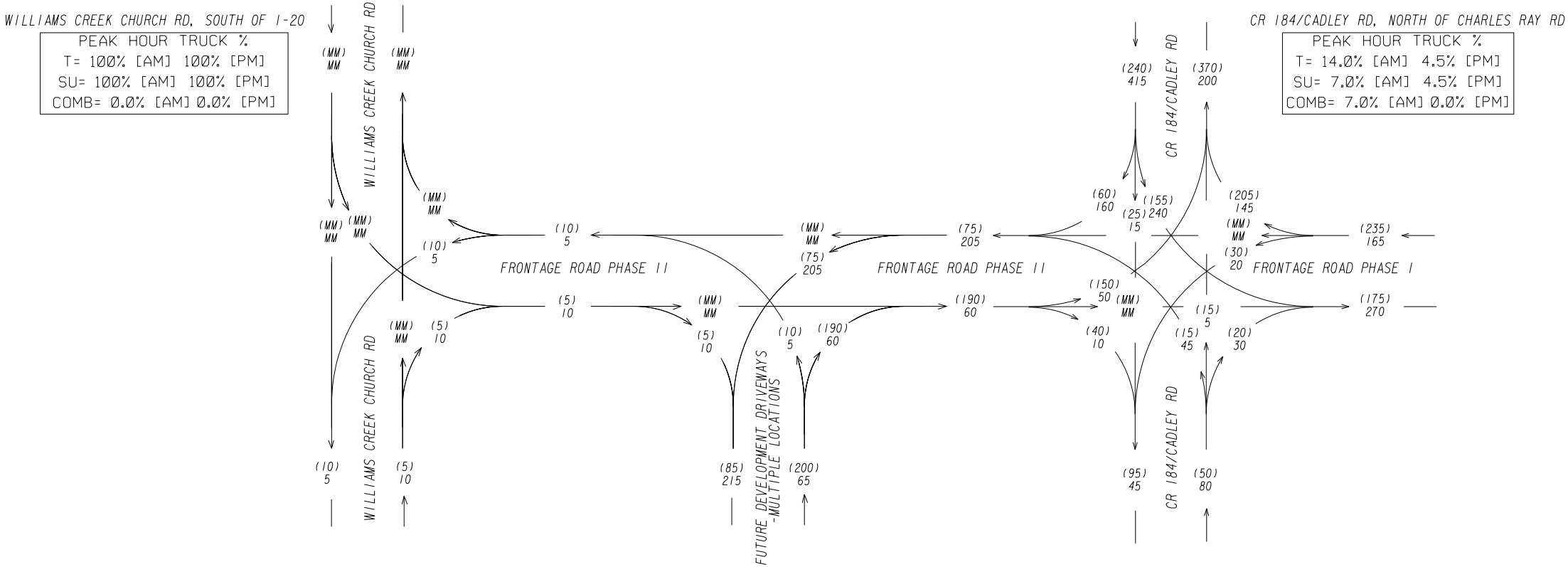
10-0013

P.I. NO. 0008680

No Build Conditions 2046 DHV



WARREN COUNTY



P.I. NO. 0008680

Build Conditions 2046 DHV



WARREN COUNTY

DESIGN TRAFFIC
2046 AM DHV = 000
2046 PM DHV = (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	10-0014
CORRECTED:	DATE:	
VERIFIED:	DATE:	

Appendix B

To: Georgia Department of Transportation, Office of Planning

From: Andrew Antweiler, P.E., Pond & Company

CC: Eric Wilkinson, TIA Regional Coordinator, GDOT Office of TIA
Daniel Sabia, P.E., Pond & Company

Date: October 29, 2018
GDOT Project No. PI#0008680

Subject: Traffic Data Collection Plan for I-20 Frontage Road Phase II (new location) from Williams Creek Church Road/CR 21 to Cadley Road/SR 185
Warren County

Introduction

The project consists of the continuation of the construction of a new two-lane roadway on new location along the south side of I-20 from Williams Church Creek Road/CR 21 to Cadley Road/CR 185. The project is located in Warren County in a rural area. The roadway will provide sufficient infrastructure to serve future development, which could consist of commercial and light industrial/distribution facilities.

The traffic forecasts for the project are being updated to accompany the revised project concept report. The previous project (PI# 0007534) included the construction of the frontage road for Phase I & II. Phase 1 of the frontage road is now GDOT PI#0010844, from Cadley Road to Ridge Road. Separately, traffic projections and a TE Report were prepared for Phase 1. GDOT approved the traffic forecasting for PI#0010844 in May 2017.

Phase II of the frontage road is now GDOT PI#0008680. A traffic study was performed in 2007 and included traffic projections for year 2032. The traffic study included estimated traffic projections for future development based on development information provided by Warren County. The traffic projections for Phase II will include expected development information, based on discussions to be held with Warren County.

Pond & Company will be preparing existing, opening, and design year traffic forecasts under build conditions for the purposes of conducting traffic operations analysis along the new road and at the intersections. The first step in this process is the compilation of historic traffic data and collection of additional current year data. This memorandum outlines the specific traffic counter locations where historical average daily traffic (ADT) data will be collected from the Georgia Department of Transportation (GDOT) coverage count database. This memorandum also identifies necessary traffic count locations where current year traffic data will need to be collected in the field and also serves as a written request for approval to conduct counts at these proposed locations. Information provided in this

memorandum is in accordance with the requirements in GDOT 2018 Design Traffic Forecasting Manual, version 1.3.

Summary of Existing Site

- The area is rural with little existing development. The roadway will cross undeveloped land and provide access to large parcels of land.
- The project length is approximately 2.26 miles long. The roadway will parallel I-20 to the north. There are no intermediate intersections. The proposed typical section consists of two 12-foot lanes and 10-foot rural shoulders within a 100-foot right-of-way.
- Williams Creek Church Road is a dirt road/access driveway with daily volumes less than 50 vehicles per day (based on GDOT count station). GDOT classifies the road as a Local Road. Williams Creek Church Road crosses over I-20. To the south is SR 278/Atlanta Highway.
- Cadley Road is an existing two-lane roadway. GDOT classifies the road as a Major Collector. Cadley Road has an interchange with I-20 (Exit 160) to the north. To the south is the town of Norwood.
- The exact tie-in locations for the proposed road has been specified and shown in **Figure 1**. The eastern tie-in location is near the Charles Ray Rd intersection, and will align with the Phase 1 frontage road. The western tie-in location will be a new intersection with Williams Creek Church Road.
- Charles Ray Rd is a dirt road/access driveway with daily volumes less than 50 vehicles per day. Based on a February 8, 2017 turning movement count, along Charles Ray Road there were zero vehicles between 7:00-9:00am and three vehicles between 4:00-6:00pm. A tube count would not provide a reliable count on the dirt road, therefore we do not propose a daily count.

Historical Traffic Volume Data

The traffic count location in **Table 1** will be used to develop a corridor growth rate along with additional information. The historical data will be used to develop a 5-, 10- and 15-year annual exponential growth rate using an exponential regression model of best fit. Additionally, future trips anticipated from new development along the new road will be added to traffic projections. This information will be presented in a second memorandum for approval, along with other forecasting information such as directional factors, k-factors and heavy vehicle percentages.

Table 1: GDOT Traffic Count Locations in Area

TC #	Location Description	Begin MP	End MP	ADT (year)
Warren County Traffic Count Locations (County ID: 301)				
8016	Williams Creek Church Road south of I-20	0.00	1.31	10 (2012)
0187	Cadley Road, south of Charles Ray Rd	0.40	3.08	250 (2014)
0196	I-20, east of Williams Creek Church Road overpass	-	-	26,800 (2016)
0109	US 278, Atlanta Hwy	2.84	8.2	1,150 (2014)

Proposed Methodology

Since the traffic projections for the Phase 1 of the frontage road were performed in 2017, and this is the Phase 2 extension of the frontage road, we propose to maintain consistency. We propose to utilize the traffic forecasts for the new intersection of Cadley Road at the Phase 1 frontage road as the base conditions and add additional expected traffic volumes due to the Phase 2 frontage road. To further explain:

- We propose to collect two volume counts to confirm existing traffic volumes in 2018
- We will compare the count data with the Phase 1 traffic projections
- We will calculate the historical growth rates based on any new GDOT count data
- Based on the above, we expect to use the Phase 1 base year and design year traffic volumes, and project these a few additional years out to match the Phase 2 base and design years
- Additional expected traffic volumes due to the Phase 2 frontage road will be added to the traffic projections for the design year

Proposed Data Collection

Pond & Company proposes to collect 48-hour bi-directional volume counts with vehicle classification at two locations.

The proposed count locations are listed below and shown in **Figure 1** (attached). Please review these proposed count locations and respond with any questions or comments. Please provide Pond & Company with approval to proceed with data collection.

48-hour bi-directional volume counts with classification

1. Cadley Road/CR 185, north of proposed road/Charles Ray Rd
2. Williams Creek Church Road/CR 21, just south of I-20

Cadley Road is a dirt road/access driveway which has daily volumes less than 50 vehicles per day. A tube count would not provide a reliable count on the dirt road; therefore we do not propose a daily count on Charles Ray Road.

No turning movement counts are proposed. As stated above, turning movements will be based on the traffic projections from the Phase 1 frontage road project.

PI0008680

I-20 Frontage Road Phase II

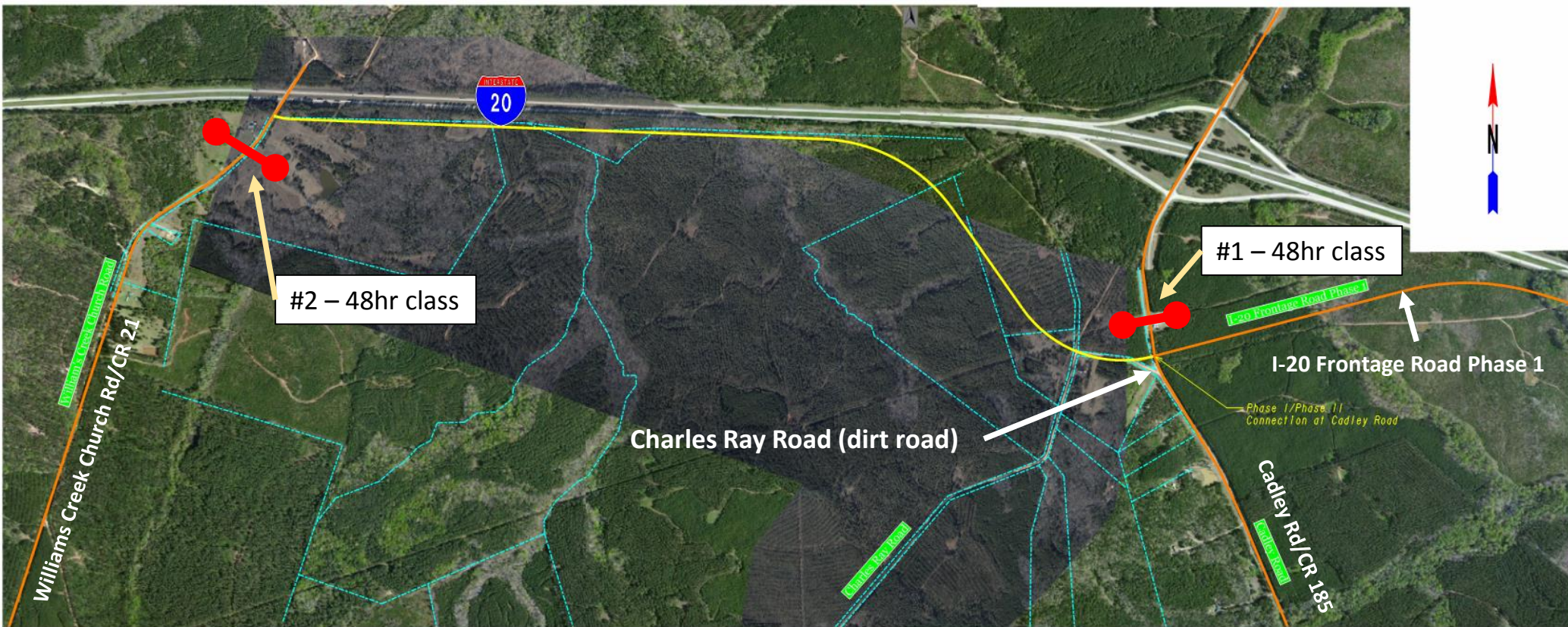
Figure 1

Proposed Count Location Map

Legend



48-hour Bi-Directional Volume Count
with classification data – 2 locations



Appendix C

To: Georgia Department of Transportation, Office of Planning

From: Andrew Antweiler, P.E., Pond & Company

CC: Eric Wilkinson, TIA Regional Coordinator, GDOT Office of TIA
Daniel Sabia, P.E., Pond & Company

Date: February 12, 2019
Revised March 5, 2019
GDOT Project No. PI#0008680
Traffic Data Report (including Existing Year traffic flow diagrams AND traffic forecasting methodology)

Subject: For I-20 Frontage Road Phase II (new location) from Williams Creek Church Road/CR 21 to Cadley Road/SR 185
Warren County

Introduction

The project consists of the continuation of the construction of a new two-lane roadway on new location along the south side of I-20 from Williams Church Creek Road/CR 21 to Cadley Road/CR 185. The project is located in Warren County in a rural area. The roadway will provide sufficient infrastructure to serve future development, which could consist of warehouse, distribution, or manufacturing facilities.

The traffic forecasts for the project are being updated to accompany the revised project concept report. The previous project (PI# 0007534) included the construction of the frontage road for Phase I & II. Phase 1 of the frontage road is now GDOT PI#0010844, from Cadley Road to Ridge Road. Separately, traffic projections and a TE Report were prepared for Phase 1. GDOT approved the traffic forecasting for PI#0010844 in May 2017.

Phase II of the frontage road is now GDOT PI#0008680. A traffic study was performed in 2007 and included traffic projections for year 2032. The traffic study included estimated traffic projections for future development based on development information provided by Warren County. The traffic projections for Phase II will include expected development information, based on information provided by the Development Authority of Warren County.

Pond & Company will be preparing existing, opening, and design year traffic forecasts under build conditions for the purposes of conducting traffic operations analysis along the new road and at the intersections. The first step in this process is the compilation of historic traffic data and collection of additional current year data. The Office of Planning approved the traffic data collection plan on November 14, 2018. The counts were conducted on January 8-9, 2019.

This memorandum presents the second step of the forecasting process by documenting the methodology used to determine the design year growth rate, k-factors, the directional factor(s), and

heavy vehicle percentages on the corridor. In a future submittal Pond will submit base year (2024), base year+2 (2026), design year (2044), and design year+2 (2046) balanced flow diagrams for the corridor.

Information provided in this memorandum is in accordance with the requirements in GDOT 2016 Design Traffic Forecasting Manual.

Summary of Existing Site

- The area is rural with little existing development. The roadway will cross undeveloped land and provide access to large parcels of land.
- The project length is approximately 2.26 miles long. The roadway will parallel I-20 to the north. There are no intermediate intersections. The proposed typical section consists of two 12-foot lanes and 10-foot rural shoulders within a 100-foot right-of-way.
- Williams Creek Church Road is a dirt road/access driveway with daily volumes less than 50 vehicles per day (based on GDOT count station). GDOT classifies the road as a Local Road. Williams Creek Church Road crosses over I-20. To the south is SR 278/Atlanta Highway.
- Cadley Road is an existing two-lane roadway. GDOT classifies the road as a Major Collector. Cadley Road has an interchange with I-20 (Exit 160) to the north. To the south is the town of Norwood.
- The exact tie-in locations for the proposed road has been specified and shown in **Figure 1**. The eastern tie-in location is near the Charles Ray Rd intersection, and will align with the Phase 1 frontage road. The western tie-in location will be a new intersection with Williams Creek Church Road.
- Charles Ray Rd is a dirt road/access driveway with daily volumes less than 50 vehicles per day. Based on a February 8, 2017 turning movement count, along Charles Ray Road there were zero vehicles between 7:00-9:00am and three vehicles between 4:00-6:00pm. A tube count would not provide a reliable count on the dirt road, therefore we do not propose a daily count.

Historical Traffic Volume Data

The traffic count location in **Table 1** were used to develop a background growth rate along with additional information. The historical data was used to develop a 10- and 15-year annual exponential growth rate using an exponential regression model of best fit. The available historical data was limited. Additionally, future trips anticipated from new development along the new frontage road will be added to traffic projections. The meeting with Warren County provided a basis for the potential development density. The growth rate analysis is documented in a later section of this memorandum.

Table 1: GDOT Traffic Count Locations in Area

TC #	Location Description	Begin MP	End MP	ADT (year)
Warren County Traffic Count Locations (County ID: 301)				
8016	Williams Creek Church Road south of I-20	0.00	1.31	10 (2012)
0187	Cadley Road, south of Charles Ray Rd	0.40	3.08	250 (2014)
0196	I-20, east of Williams Creek Church Road overpass	-	-	26,800 (2016)
0109	US 278, Atlanta Hwy	2.84	8.2	1,150 (2014)

Data Collection

Pond & Company collected 48-hour bi-directional volume counts with vehicle classification at two locations. The count locations are listed below and shown in **Figure 1** (attached). Data from these counts was used to supplement traffic growth projections and to develop the k-factors, directional factors, and truck percentages.

48-hour bi-directional volume counts with classification

1. Cadley Road/CR 185, north of proposed road/Charles Ray Rd
2. Williams Creek Church Road/CR 21, at the I-20 overpass bridge

Cadley Road is a dirt road/access driveway which has daily volumes less than 50 vehicles per day. A tube count would not provide a reliable count on the dirt road; therefore, a daily count was not performed on Charles Ray Road.

No turning movement counts were performed. Turning movements will be based on the traffic projections from the separate Phase 1 frontage road project.

Traffic Volume Growth Review

Historical Traffic Volume Data

Georgia DOT collects annual traffic counts throughout the state which can be used to determine historic growth rates. The four GDOT traffic count locations located near the project were reviewed. The actual traffic counts (not including estimates) were utilized to calculate an annual historic compound growth rate.

Traffic Count Location #3018016 is located on Williams Creek Church Road South of I-20. The count location only provided historical ADT data from one year – 2012. No historic growth rate was calculated.

Traffic Count Location #3010187 is located on Cadley Road south of Charles Ray Road. The count location provided historical ADT data from year 2000 to 2014. The annual historic compound growth rate was zero percent.

Traffic Count Location #3010196 is located on I-20 east of Williams Creek Church Road. The count location provided historical ADT data from year 1990 to 2016. The annual historic compound growth rate was 0.61%.

Traffic Count Location #3010109 is located on US 278 (Atlanta Hwy) west of Norwood. The count location provided historical ADT data from year 2001 to 2016. The annual historic compound growth rate was negative 1.37%.

Additionally, daily volume counts were performed along Cadley Road/CR 185 in 2017 for the Phase 1 frontage road project and again in 2019 for this project. The 2017 daily volume was 296 vpd (raw count) and 325 vpd (AADT). In 2019 the daily volume 230 vpd (raw count) and 250 vpd (AADT).

The historic count data and calculations are attached.

Future Traffic Projection

Reviewing the historical traffic growth information provided a basis to project future traffic volumes for the project. According to the GDOT Design Traffic Forecasting Manual, in cases where the historical growth rates are minimal or negative, a minimum growth rate of 0.5% should be utilized. To account for background growth in the area, a compound annual growth rate of 1.0% is recommended from the 2019 existing year to the base year (2024) and base year +2 (2026). To account for background growth in the area and long-term growth in traffic volume, a compound annual growth rate of 1.0% is recommended from the 2024 base year to the design year (2044) and design year +2 (2046). Additionally, the growth rates are proposed to be used for both the No-Build and Build conditions analysis.

An effort has been made to maintain consistency with the traffic forecasting methods for Phase 1 frontage road project. The traffic projections for Phase 1 of the frontage road were prepared with an base year of 2021 and a design year of 2041. For the Phase 2 extension of the frontage road, we utilized the traffic forecasts for the new intersection of Cadley Road at the Phase 1 frontage road in the design year and added additional expected traffic volumes due to the Phase 2 frontage road.

Since the new location road will provide the transportation infrastructure to serve potential new development, future trips associated with new development will be accounted for in the design year, Build conditions analysis. The Development Authority of Warren County provided an estimate of development that could occur at full buildout of the developable land. Warren County provided a letter and email (attached) explaining their development expectations. The county foresees one of two scenarios could occur. For the purposes of projecting traffic for the 20-year horizon year, a portion of the expected development in Scenario 2 was utilized. Scenario 2 envisions 4-5 companies locate facilities of various sizes, which could include distribution, warehouse, or light/heavy industrial facilities.

The future trips associated with these facilities was estimated based on ITE's Trip Generation Manual (10th Edition). Trip generation was performed based on development intensity for daily, AM peak hour, and PM peak hour periods. **Table 2** summarizes the estimated trip generation for developments along the frontage road. For the flow diagrams traffic from the developments will be based on 2,200 daily trips, 280 AM peak hour trips, and 280 PM peak hour trips.

The No-Build conditions assume the Phase 2 frontage road and associated development would not be constructed.

TABLE 2 - TRIP GENERATION										
Phase 2 Frontage Road Potential Development										
Land Use		Units	Intensity	Daily Trips	AM Peak Hour of Adjacent Street			PM Peak Hour of Adjacent Street		
				Two-way	Total	In	Out	Total	In	Out
140	Manufacturing	SF	275,000	1,029	171	132	39	168	52	116
150	Warehousing	SF	700,000	1,152	109	84	25	112	30	82
Gross Trips				2,181	280	216	64	280	82	198
New Development Trips for Balanced Flow Diagrams				2,200	280	215	65	280	80	200

Notes: Trip Generation Rates based on ITE Trip Generation, 10th Edition

Trips rounded for purposes of balanced flow diagrams calculations

Development of Average Annual Daily Traffic Volumes

Traffic flow diagrams are enclosed for the 2019 Existing Conditions for Average Annual Daily Traffic (AADT) and Design Hourly Volumes (AM and PM peak hours). **Table 3** summarizes the raw ADT, AADT and DHV at all count locations.

In accordance with Section 4.4 and 4.5 of the Design Traffic Forecasting Manual, ADTs were adjusted based on seasonal factors (note: axle correction factors were not used for the classification counts). The AADT was calculated using the most recently available *2016 Traffic Factors* from GDOT.

The 2016 Traffic Factors for the State of Georgia were used to develop base-year AADT volumes and DHV volumes. GDOT Traffic Factors are provided by functional class based on the Annual Traffic Recorder (ATR) program that continuously collects data along the state's roadway system. The traffic factors utilized included:

- For both study roadways, the factor Group 01 (Rural Local Collectors) was utilized
 - Cadley Road – Major Collector – January = 1.1; Daily Tues = 0.98, Wed = 0.98
 - Williams Creek Church Road – Local Road = January 1.1; Daily Tues = 0.98, Wed = 0.98
 - Cadley Road: Total factor = 1.08
 - Williams Creek Church Road: Total factor = 1.08

Typical traffic factors were calculated for both the raw traffic and the Existing 2019 traffic flow diagrams. The average peaking (K-Factor), which is the ratio of hourly traffic to daily traffic during the peak hour, is reported for both AM and PM periods. The directional factor (D-Factor) identifies the extent of the directionality of traffic during the peak hour. Directional factors range between 50-100 and a factor of 50 indicates that there is an even split between each direction of travel. A D-Factor is reported for both peak hours of the day, as well as daily. These factors were calculated for the peak hour for each count location.

The overall K and D factors for the balanced traffic flow diagrams are close to the K and D factors calculated from the 2019 raw traffic counts.

Heavy Vehicle Percentages

Vehicle classification counts were conducted as part of the data collection effort. The FHWA classifies vehicles into 13 separate groupings, based on the number of wheels and axles. In concurrence with the *GDOT Design Traffic Forecasting Manual, Rev 1.0*, the FHWA classifications are summarized into three categories: Personal Vehicles, Single-Unit Trucks, and Combination-Unit Trucks. The percent of traffic made up by Single-Unit and Combination-Unit trucks during each peak hour, as well as for the day, are summarized in **Table 4**. The table presents the average for the two-day count period.

Review Process and Next Steps

Pond submits the traffic information in this memorandum to GDOT Office of Planning for review. Once GDOT has provided their review and approval, the growth rate and other traffic factors will be used to create base year (2024), base year+2 (2026), design year (2044), and design year+2 (2046) balanced flow diagrams for the corridor.

Table 3: Traffic Volume Data

Bi-directional Count Location	Data	Daily Volume		Bi-directional Design Hour Volume		K-Factor		D-Factor		
				AM	PM	AM	PM	AM	PM	Daily
1. Cadley Road/CR 184, north of proposed road/Charles Ray Rd	Raw Count Data (2019)	ADT	230	14	22	0.06	0.10	0.71	0.77	0.53
	Traffic Adj. Factors applied	AADT	249							
	Balanced Flow Diagram (2019)	AADT	250	15	25	0.06	0.10	0.67	0.80	0.50
	Raw Count Data (2019)	ADT	26	2	2	0.08	0.08	0.50	0.50	0.54
2. Williams Creek Church Rd, south of I-20	Traffic Adj. Factors applied	AADT	28							
	Balanced Flow Diagram (2019)	AADT	50	0	0	N/A	N/A	N/A	N/A	N/A

Note: Highest volume day was reported and calculations based on.
Location #1: Wednesday, 1/9/19; 7-8 AM; 5-6 PM
Location #2: Tuesday, 1/8/19; 8-9 AM; 3-4 PM

Table 4: Heavy Vehicle Data

Bi-directional Count Location	Data	AM			PM			Daily		
		SU %	Comb %	Total HV %	SU %	Comb %	Total HV %	SU %	Comb %	Total HV %
1. Cadley Road/CR 184, north of proposed road/Charles Ray Rd	Raw Count Data (2019)	7.0	7.0	14.0	4.5	0.0	4.5	5.5	2.0	7.5
2. Williams Creek Church Rd, south of I-20	Raw Count Data (2019)	100.0	0.0	100.0	100.0	0.0	100.0	27.0	0.0	27.0

Note: Highest volume day was reported and calculations based on.

Location #1: Wednesday, 1/9/19; 7-8 AM; 5-6 PM

Location #2: Tuesday, 1/8/19; 8-9 AM; 3-4 PM

Information for Traffic Study on Phase II of Frontage Road Warren County

Prepared by:
OB McCorkle
Executive Director, Development Authority of Warren County
January 30, 2019

The development potential of the proposed Centerpointe Mega Industrial Site just west of Norwood, Georgia, is significant, not only for Warren County, but possibly for the counties within a 60-mile radius. The Development Authority has submitted this property for a few companies, however, the land currently is too raw to be competitive. A Preliminary Planning & Engineering Report for a Water & Sewer System Expansion was completed in 2016 to determine the best alternatives to provide these services up to 1000 gallons per day, which would qualify the site more most industry sectors. The construction of the frontage road will allow the site to be more marketable and competitive. This site of over 1,000 acres lends itself to warehouse, distribution, light manufacturing, and heavy manufacturing.

Scenario 1:

The mega site has been considered by the Georgia State Department of Economic Development for projects as large as \$1 Billion investment with 6,000 employees, as recently as last year. A company of this size would occupy the entire 1000-acre site. Approximate building space would be up to 5,500,000 square feet. Both construction of the facility and employment would be phased in over an estimated 3-year period. Projects of this size usually involve heavy and light manufacturing, as well as, distribution.

Scenario 2:

If the 1000-acre site is subdivided for smaller industries. A likely scenario could include 4-5 companies of various sizes. For example, the following could be considered:

- Refrigerated/Perishable distribution center with a capital investment of \$110 million. The company would occupy approximately 400 acres. The 1,000,000 square-foot facility would employ 1,500 workers over three shifts. Total daily truck movements for both the facility could be as high as 1,200 in and out, along with car movements of up to 2,500 in and out.
- Distribution center of \$45 million capital investment. The company would build a 700,000 square foot facility on 125 acres. Employment would be 300 running three shifts. No sure of truck traffic.
- Machinery and equipment light manufacturer with a capital investment of \$45 million. The company would occupy approximately 75 acres with a facility of 100,000 square feet. Employment would be 300 running three shifts. Truck traffic approximately 40 movements in and out per day; estimated car movements of 500 in and out per day.
- Machinery and equipment light manufacturer with a capital investment of \$45 million. The company would occupy approximately 70 acres with a facility of 100,000 square feet. Employment would be 300 running three shifts. Truck traffic approximately 40 movements in and out per day; estimated car movements of 500 in and out per day.

- Heavy industrial manufacturer with \$185 million capital investment. The company would occupy 50 acres in a facility of 200,000 square feet. Employment would be 100 employees divided among three shifts. Total truck movements would be 12 in and out per day. Car movements approximately 200 per day in and out.
- Manufacturer using rail with a capital investment of \$25 million. The company would build the 75,000 square foot facility on 50 acres with a rail spur coming off of CSX main line. The company would employ 175 running 3 shifts. Some truck traffic, but mostly employee car movements. Products primarily come in and go out by rail.

Antweiler, Andrew

From: Smeeton, Pat
Sent: Tuesday, February 05, 2019 10:14 AM
To: Warren County Development
Cc: John Graham; Antweiler, Andrew; Sabia, Daniel
Subject: RE: Warren County Frontage Road Phase II

Thanks much.

From: Warren County Development <outlook_8ECC4DB38499091D@outlook.com> **On Behalf Of** Warren County Development
Sent: Tuesday, February 5, 2019 10:12 AM
To: Smeeton, Pat <SmeetonP@pondco.com>
Cc: John Graham <jgraham@classicsouth.net>; Antweiler, Andrew <AntweilerA@pondco.com>; Sabia, Daniel <SabiaD@pondco.com>
Subject: Re: Warren County Frontage Road Phase II

EXTERNAL EMAIL

Yes, Scenario 2, or a portion of it, would be what we would expect in a 20-year window.

O.B. McCorkle
Director
Development Authority of Warren County
706.832.1601

On Feb 5, 2019, at 9:37 AM, Smeeton, Pat <SmeetonP@pondco.com> wrote:

OB,

This is perfect, thanks. We want to portray a realistic expectation of development that is likely over the next 20 years (our planning horizon). While your writeup shows somewhat of a full build-out, would you say that Scenario 2 would likely be half built-out over the next 20 years? Please call my cell if you have any questions. Thanks.

Pat Smeeton

Associate | Sr. Project Manager

<image005.jpg>

Pond | 3500 Parkway Lane | Suite 500

Norcross, Georgia 30092

p 678.336.7740 | f 678.336.7744 | mobile 678.205.6446

www.pondco.com

<image006.png> <image007.jpg> <image008.png>

From: Warren County Development <outlook_8ECC4DB38499091D@outlook.com> **On Behalf Of** Warren County Development
Sent: Wednesday, January 30, 2019 1:37 PM
To: Smeeton, Pat <SmeetonP@pondco.com>; John Graham <jgraham@classicsouth.net>

Cc: Antweiler, Andrew <AntweilerA@pondco.com>; Sabia, Daniel <SabiaD@pondco.com>

Subject: Re: Warren County Frontage Road Phase II

EXTERNAL EMAIL

Here it is. Let me know if this is sufficient.

Sorry for the delay. I got started on it, and then it got lost in the shuffle of other activities, and it slipped my mind.

Thanks for the reminder.

OB McCorkle

Executive Director

Development Authority of Warren County

Downtown Development Authority of the City of Warrenton

46 S Norwood St / PO Box 27

Warrenton, GA 30828

706.465.9604 (w)

706.832.1601 (c)

From: Smeeton, Pat <SmeetonP@pondco.com>

Sent: Monday, January 28, 2019 6:06 PM

To: John Graham; OB McCorkle (development@WarrenCountyGA.com)

Cc: Antweiler, Andrew; Sabia, Daniel

Subject: Warren County Frontage Road Phase II

OB,

We met a few months ago to discuss the Phase II Frontage Road. You mentioned that you could get me a best guess as to the type and intensity of the industrial development that would most likely develop on the land that the frontage road opens up. I know that you mentioned there was actually more uninterrupted land adjacent to the western frontage road so the type of development could be larger. We need this information to prepare the traffic study that GDOT and FHWA require. Thanks for your help on this. Let me know if you have any questions.

Pat Smeeton

Associate | Sr. Project Manager

<[image001.jpg](#)>

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<[image002.png](#)> <[image003.jpg](#)> <[image004.png](#)>

CLASSIFICATION

Cadley Rd/CR-185 & N/O Charles Ray Rd

Day: Tuesday

Date: 1/8/2019

City: Norwood

Project #: GA19-9000-001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	1	0	0	0	0	0	1	0	0	0	0	0	2
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
05:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
06:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
07:00	0	14	1	0	0	0	0	0	1	0	0	0	0	16
08:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
09:00	0	3	2	0	0	0	0	0	1	0	0	0	0	6
10:00	0	5	8	0	1	0	0	0	0	0	0	0	0	14
11:00	0	9	7	0	0	0	0	0	0	0	0	0	0	16
12:00 PM	0	7	3	0	2	0	0	0	0	0	0	0	0	12
13:00	0	7	6	0	0	0	0	0	0	0	0	0	0	13
14:00	0	11	5	0	0	0	0	0	0	0	0	0	0	16
15:00	0	12	4	0	0	0	0	0	0	0	0	0	0	16
16:00	0	8	5	0	1	0	0	0	0	0	0	0	0	14
17:00	0	10	8	0	0	1	0	0	0	0	0	0	0	19
18:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
19:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
20:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
21:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
22:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
23:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Totals		149	54		4	1		1	2					211
% of Totals		71%	26%		2%	0%		0%	1%					100%

AM Volumes	0	63	22	0	1	0	0	1	2	0	0	0	0	89
% AM		30%	10%		0%			0%	1%					42%
AM Peak Hour		07:00	10:00		10:00			03:00	07:00					07:00
Volume		14	8		1			1	1					16
PM Volumes	0	86	32	0	3	1	0	0	0	0	0	0	0	122
% PM		41%	15%		1%	0%								58%
PM Peak Hour		15:00	17:00		12:00	17:00								17:00
Volume		12	8		2	1								19
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes			Volume		%	Volume		%	Volume		%	Volume		%
			25	↔	12%	25	↔	12%	33	↔	16%	128	↔	61%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Cadley Rd/CR-185 & N/O Charles Ray Rd

Day: Tuesday
Date: 1/8/2019

City: Norwood
Project #: GA19-9000-001

DAILY TOTALS					NB	SB						EB	WB	Total
					99	112						0	0	211
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	1	0	0	1		12:00	1	0	0	0	1		
00:15	0	0	0	0			12:15	2	0	0	0	2		
00:30	0	0	0	0			12:30	3	3	0	0	6		
00:45	0	1	2	0	1 2		12:45	1	7	2	5	3 12		
01:00	0	0	0	0			13:00	2	2	0	0	4		
01:15	0	1	0	0	1		13:15	1	3	0	0	4		
01:30	0	0	0	0			13:30	0	2	0	0	2		
01:45	0	0	1	0	1		13:45	0	3	3	10	3 13		
02:00	0	1	0	0	1		14:00	0	1	0	0	1		
02:15	0	0	0	0			14:15	2	2	0	0	4		
02:30	0	0	0	0			14:30	2	2	0	0	4		
02:45	1	1	2	0	2 3		14:45	4	8	3	8	7 16		
03:00	0	0	0	0			15:00	1	3	0	0	4		
03:15	1	0	0	0	1		15:15	2	4	0	0	6		
03:30	0	0	0	0			15:30	3	1	0	0	4		
03:45	1	2	0	0	1 2		15:45	1	7	1	9	2 16		
04:00	0	0	0	0			16:00	0	1	0	0	1		
04:15	1	1	0	0	2		16:15	4	2	0	0	6		
04:30	0	1	0	0	1		16:30	2	2	0	0	4		
04:45	0	1	0	2	3		16:45	2	8	1	6	3 14		
05:00	3	0	0	0	3		17:00	0	3	0	0	3		
05:15	0	0	0	0			17:15	0	2	0	0	2		
05:30	0	1	0	0	1		17:30	3	6	0	0	9		
05:45	2	5	0	1	2 6		17:45	1	4	4	15	5 19		
06:00	4	0	0	0	4		18:00	1	2	0	0	3		
06:15	2	0	0	0	2		18:15	1	1	0	0	2		
06:30	1	2	0	0	3		18:30	0	1	0	0	1		
06:45	1	8	1	3	2 11		18:45	0	2	1	5	1 7		
07:00	1	3	0	0	4		19:00	0	2	0	0	2		
07:15	1	3	0	0	4		19:15	1	1	0	0	2		
07:30	1	5	0	0	6		19:30	0	2	0	0	2		
07:45	1	4	1	12	2 16		19:45	1	2	0	5	1 7		
08:00	2	0	0	0	2		20:00	1	1	0	0	2		
08:15	1	2	0	0	3		20:15	0	1	0	0	1		
08:30	0	2	0	0	2		20:30	0	0	0	0			
08:45	1	4	1	5	2 9		20:45	1	2	0	2	1 4		
09:00	0	2	0	0	2		21:00	0	0	0	0			
09:15	2	1	0	0	3		21:15	0	2	0	0	2		
09:30	0	0	0	0			21:30	2	1	0	0	3		
09:45	0	2	1	4	1 6		21:45	2	4	1	4	3 8		
10:00	2	0	0	0	2		22:00	0	1	0	0	1		
10:15	0	0	0	0			22:15	1	0	0	0	1		
10:30	4	2	0	0	6		22:30	0	0	0	0			
10:45	2	8	4	6	6 14		22:45	0	1	0	1	2		
11:00	2	1	0	0	3		23:00	1	0	0	0	1		
11:15	6	0	0	0	6		23:15	1	0	0	0	1		
11:30	4	0	0	0	4		23:30	1	0	0	0	1		
11:45	1	13	2	3	3 16		23:45	0	3	1	1	1 4		
TOTALS	48	41			89		TOTALS	51	71			122		
SPLIT %	53.9%	46.1%			42.2%		SPLIT %	41.8%	58.2%			57.8%		

DAILY TOTALS					NB	SB						EB	WB	Total
					99	112						0	0	211
AM Peak Hour	10:30	06:45			10:30		PM Peak Hour	14:45	17:00			14:30		
AM Pk Volume	14	12			21		PM Pk Volume	10	15			21		
Pk Hr Factor	0.583	0.600			0.875		Pk Hr Factor	0.625	0.625			0.750		
7 - 9 Volume	8	17	0	0	25		4 - 6 Volume	12	21	0	0	33		
7 - 9 Peak Hour	07:15	07:00			07:00		4 - 6 Peak Hour	16:00	17:00			17:00		
7 - 9 Pk Volume	5	12	0	0	16		4 - 6 Pk Volume	8	15	0	0	19		
Pk Hr Factor	0.625	0.600	0.000	0.000	0.667		Pk Hr Factor	0.500	0.625	0.000	0.000	0.528		

CLASSIFICATION

Cadley Rd/CR-185 & N/O Charles Ray Rd

Day: Wednesday

Date: 1/9/2019

City: Norwood

Project #: GA19-9000-001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
06:00	0	11	0	0	1	0	0	1	0	0	0	0	0	13
07:00	0	9	3	0	1	0	0	0	1	0	0	0	0	14
08:00	0	5	3	0	1	0	0	0	0	0	0	0	0	9
09:00	0	8	1	0	2	0	0	0	0	0	0	0	0	11
10:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
11:00	0	10	8	0	0	1	0	0	0	0	0	0	0	19
12:00 PM	0	10	7	0	0	0	0	0	1	0	0	0	0	18
13:00	0	14	6	0	2	0	0	0	0	0	0	0	0	22
14:00	0	3	5	0	0	0	0	0	0	0	0	0	0	8
15:00	0	8	1	0	2	1	0	0	0	0	0	0	0	12
16:00	0	9	4	0	0	0	0	0	0	0	0	0	0	13
17:00	0	14	7	0	1	0	0	0	0	0	0	0	0	22
18:00	0	8	8	0	0	0	0	0	0	0	0	0	0	16
19:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
20:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
21:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
22:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
23:00	0	0	1	0	1	0	0	0	1	0	0	0	0	3
Totals		155	58		11	2		1	3					230
% of Totals		67%	25%		5%	1%		0%	1%					100%

AM Volumes	0	62	17	0	5	1	0	1	1	0	0	0	0	87
% AM		27%	7%		2%	0%		0%	0%					38%
AM Peak Hour		06:00	11:00		09:00	11:00		06:00	07:00					11:00
Volume		11	8		2	1		1	1					19
PM Volumes	0	93	41	0	6	1	0	0	2	0	0	0	0	143
% PM		40%	18%		3%	0%			1%					62%
PM Peak Hour		13:00	18:00		13:00	15:00			12:00					13:00
Volume		14	8		2	1			1					22
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes			Volume		%	Volume		%	Volume		%	Volume		%
			23	↔	10%	40	↔	17%	35	↔	15%	132	↔	57%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Cadley Rd/CR-185 & N/O Charles Ray Rd

Day: Wednesday
Date: 1/9/2019

City: Norwood
Project #: GA19-9000-001

DAILY TOTALS					NB	SB						EB	WB	Total
					109	121						0	0	230
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00	1	1	0	0	2	12:00	1	8	0	0	9			
00:15	0	0	0	0	13	12:15	3	2	0	0	5			
00:30	0	1	0	0		12:30	1	0	0	0	1			
00:45	0	1	0	0		12:45	1	6	2	12	3			
											18			
01:00	0	0	0	0		13:00	6	1	0	0	7			
01:15	0	0	0	0		13:15	1	1	0	0	2			
01:30	0	0	0	0		13:30	5	2	0	0	7			
01:45	0	0	0	0		13:45	4	16	2	6	6			
02:00	0	0	0	0		14:00	1	0	0	0	1			
02:15	0	0	0	0		14:15	2	1	0	0	3			
02:30	0	0	0	0		14:30	0	0	0	0				
02:45	2	2	1	0		14:45	4	7	0	1	4			
03:00	0	0	0	0	3	15:00	0	2	0	0	2			
03:15	0	1	0	0	12	15:15	1	3	0	0	4			
03:30	0	0	0	0		15:30	2	2	0	0	4			
03:45	0	1	2	0		15:45	0	3	2	9	2			
											12			
04:00	0	0	0	0	12	16:00	0	1	0	0	1			
04:15	1	0	0	0		16:15	2	2	0	0	4			
04:30	0	1	0	0		16:30	2	3	0	0	5			
04:45	0	1	0	1		16:45	2	6	1	7	3			
05:00	4	0	0	0	4	17:00	0	4	0	0	4			
05:15	0	0	0	0	5	17:15	1	3	0	0	4			
05:30	0	0	0	0		17:30	2	5	0	0	7			
05:45	1	5	0	0		17:45	2	5	5	17	7			
											22			
06:00	3	0	0	0	3	18:00	2	5	0	0	7			
06:15	3	1	0	0	4	18:15	2	3	0	0	5			
06:30	1	2	0	0	3	18:30	2	0	0	0	2			
06:45	0	7	3	6	3	18:45	1	7	1	9	2			
07:00	2	0	0	0	2	19:00	1	1	0	0	2			
07:15	0	8	0	0	8	19:15	1	3	0	0	4			
07:30	0	2	0	0	2	19:30	3	1	0	0	4			
07:45	2	4	0	10	2	19:45	0	5	0	5	10			
08:00	3	0	0	0	3	20:00	0	4	0	0	4			
08:15	1	1	0	0	2	20:15	0	2	0	0	2			
08:30	1	0	0	0	1	20:30	0	0	0	0				
08:45	2	7	1	2	3	20:45	0	1	7	0	1			
09:00	0	1	0	0	1	21:00	0	0	0	0				
09:15	1	1	0	0	2	21:15	1	3	0	0	4			
09:30	2	1	0	0	3	21:30	2	1	0	0	3			
09:45	3	6	2	5	5	21:45	1	4	0	4	1			
10:00	2	0	0	0	2	22:00	0	1	0	0	1			
10:15	1	1	0	0	2	22:15	0	1	0	0	1			
10:30	2	0	0	0	2	22:30	0	2	0	0	2			
10:45	0	5	0	1	6	22:45	0	0	4	0	4			
11:00	2	4	0	0	6	23:00	1	0	0	0	1			
11:15	3	4	0	0	7	23:15	1	0	0	0	1			
11:30	3	1	0	0	4	23:30	0	1	0	0	1			
11:45	2	10	0	9	2	23:45	0	2	0	1	3			
TOTALS	48	39			87	TOTALS	61	82			143			
SPLIT %	55.2%	44.8%			37.8%	SPLIT %	42.7%	57.3%			62.2%			

DAILY TOTALS					NB	SB						EB	WB	Total
					109	121						0	0	230
AM Peak Hour	11:00	06:30		11:15	PM Peak Hour	13:00	17:15		17:30					
AM Pk Volume	10	13		22	PM Pk Volume	16	18		26					
Pk Hr Factor	0.833	0.406		0.611	Pk Hr Factor	0.667	0.900		0.929					
7 - 9 Volume	11	12	0	23	4 - 6 Volume	11	24	0	35					
7 - 9 Peak Hour	07:45	07:00		07:15	4 - 6 Peak Hour	16:00	17:00		17:00					
7 - 9 Pk Volume	7	10	0	15	4 - 6 Pk Volume	6	17	0	22					
Pk Hr Factor	0.583	0.313	0.000	0.469	Pk Hr Factor	0.750	0.850	0.000	0.786					

CLASSIFICATION

Williams Creek Church Rd/CR-21 & S/O Interstate 20

Day: Tuesday

Date: 1/8/2019

City: Norwood

Project #: GA19-9000-001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	3	0	0	0	0	0	0	0	0	0	0	5
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00	0	0	0	0	0	2	0	0	0	0	0	0	0	2
09:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
10:00	0	0	1	0	0	1	0	0	0	0	0	0	0	2
11:00	0	0	2	0	0	1	0	0	0	0	0	0	0	3
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
14:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1
15:00	0	0	0	0	1	1	0	0	0	0	0	0	0	2
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
19:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
20:00	0	0	3	0	0	0	0	0	0	0	0	0	0	3
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Totals		3	16		2	5								26
% of Totals		12%	62%		8%	19%								100%

AM Volumes	0	3	7	0	0	4	0	0	0	0	0	0	14	
% AM		12%	27%			15%							54%	
AM Peak Hour						08:00								
Volume		2	3			2							5	
PM Volumes	0	0	9	0	2	1	0	0	0	0	0	0	12	
% PM			35%		8%	4%							46%	
PM Peak Hour			20:00		14:00	15:00							20:00	
Volume			3		1	1							3	
Directional Peak Periods			AM 7-9			NOON 12-2			PM 4-6			Off Peak Volumes		
All Classes			Volume		%	Volume		%	Volume		%	Volume	%	
			3	↔	12%	1	↔	4%	0	↔	0%	22	↔	85%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME

Williams Creek Church Rd/CR-21 & S/O Interstate 20

Day: Tuesday
Date: 1/8/2019

City: Norwood
Project #: GA19-9000-001

DAILY TOTALS					NB	SB						EB	WB	Total
					12	14						0	0	26
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	1	1	0	0	2		12:00	0	0	0	0			
00:15	0	0	0	0			12:15	0	0	0	0			
00:30	2	0	0	0	2		12:30	0	0	0	0			
00:45	0	3	1	2	1		12:45	0	0	0	0			
01:00	0	0	0	0			13:00	0	0	0	0			
01:15	0	0	0	0			13:15	0	1	0	0			1
01:30	0	0	0	0			13:30	0	0	0	0			
01:45	0	0	0	0			13:45	0	0	1	0			1
02:00	0	0	0	0			14:00	0	0	0	0			
02:15	0	0	0	0			14:15	0	0	0	0			
02:30	0	0	0	0			14:30	0	1	0	0			1
02:45	0	0	0	0			14:45	0	0	1	0			1
03:00	0	0	0	0			15:00	1	1	0	0			2
03:15	0	0	0	0			15:15	0	0	0	0			
03:30	0	0	0	0			15:30	0	0	0	0			
03:45	0	0	0	0			15:45	0	1	0	1			2
04:00	0	0	0	0			16:00	0	0	0	0			
04:15	0	0	0	0			16:15	0	0	0	0			
04:30	0	0	0	0			16:30	0	0	0	0			
04:45	0	0	0	0			16:45	0	0	0	0			
05:00	0	0	0	0			17:00	0	0	0	0			
05:15	0	0	0	0			17:15	0	0	0	0			
05:30	0	0	0	0			17:30	0	0	0	0			
05:45	0	0	0	0			17:45	0	0	0	0			
06:00	0	0	0	0			18:00	0	1	0	0			1
06:15	0	0	0	0			18:15	0	0	0	0			
06:30	0	0	0	0			18:30	0	0	0	0			
06:45	0	0	0	0			18:45	0	0	1	0			1
07:00	0	0	0	0			19:00	0	0	0	0			
07:15	1	0	0	0	1		19:15	0	0	0	0			
07:30	0	0	0	0			19:30	0	1	0	0			1
07:45	0	1	0	0	1		19:45	1	1	0	1			2
08:00	0	0	0	0			20:00	0	2	0	0			2
08:15	0	0	0	0			20:15	0	0	0	0			
08:30	1	0	0	0	1		20:30	1	0	0	0			1
08:45	0	1	1	1	1		20:45	0	1	0	2			3
09:00	0	0	0	0			21:00	0	0	0	0			
09:15	0	0	0	0			21:15	0	0	0	0			
09:30	0	0	0	0			21:30	0	0	0	0			
09:45	1	1	0	0	1		21:45	0	0	0	0			
10:00	0	0	0	0			22:00	0	0	0	0			
10:15	0	1	0	0	1		22:15	0	0	0	0			
10:30	0	1	0	0	1		22:30	0	0	0	0			
10:45	0	0	2	0	2		22:45	0	0	0	0			
11:00	0	0	0	0			23:00	0	0	0	0			
11:15	1	0	0	0	1		23:15	1	0	0	0			1
11:30	0	1	0	0	1		23:30	0	0	0	0			
11:45	1	2	0	1	1		23:45	0	1	1	1			2
TOTALS	8	6			14		TOTALS	4	8			12		
SPLIT %	57.1%	42.9%			53.8%		SPLIT %	33.3%	66.7%			46.2%		

DAILY TOTALS					NB	SB						EB	WB	Total
					12	14						0	0	26
AM Peak Hour							PM Peak Hour	19:45	19:15					19:15
AM Pk Volume	3	2				5	PM Pk Volume	2	3					4
Pk Hr Factor	0.375	0.500				0.625	Pk Hr Factor	0.500	0.375					0.500
7 - 9 Volume	2	1	0	0		3	4 - 6 Volume	0	0	0	0			0
7 - 9 Peak Hour	07:00	08:00				08:00	4 - 6 Peak Hour							
7 - 9 Pk Volume	1	1	0	0		2	4 - 6 Pk Volume	0	0	0	0			0
Pk Hr Factor	0.250	0.250	0.000	0.000		0.500	Pk Hr Factor	0.000	0.000	0.000	0.000			0.000

CLASSIFICATION

Williams Creek Church Rd/CR-21 & S/O Interstate 20

Day: Wednesday

Date: 1/9/2019

City: Norwood

Project #: GA19-9000-001

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
00:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
17:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Totals		4	5											9
% of Totals		44%	56%											100%

AM Volumes	0	3	1	0	0	0	0	0	0	0	0	0	0	4
% AM		33%	11%											44%
AM Peak Hour			07:00											
Volume		2	1											2
PM Volumes	0	1	4	0	0	0	0	0	0	0	0	0	0	5
% PM		11%	44%											56%
PM Peak Hour		20:00	16:00											16:00
Volume		1	2											2
Directional Peak Periods	AM 7-9				NOON 12-2				PM 4-6				Off Peak Volumes	
All Classes	Volume			%	Volume			%	Volume			%	Volume	%
	1	↔		11%	0	↔		0%	3	↔		33%	5	56%

Classification Definitions

1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers	
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers	

VOLUME


Williams Creek Church Rd/CR-21 & S/O Interstate 20

Day: Wednesday
Date: 1/9/2019

City: Norwood
Project #: GA19-9000-001

DAILY TOTALS					NB	SB						EB	WB	Total
					5	4						0	0	9
AM Period	NB	SB	EB	WB	TOTAL		PM Period	NB	SB	EB	WB	TOTAL		
00:00	0	0	0	0	2	2	12:00	0	0	0	0			
00:15	1	1	0	0			12:15	0	0	0	0			
00:30	0	0	0	0			12:30	0	0	0	0			
00:45	0	1	0	1			12:45	0	0	0	0			
01:00	0	0	0	0			13:00	0	0	0	0			
01:15	0	0	0	0			13:15	0	0	0	0			
01:30	0	0	0	0			13:30	0	0	0	0			
01:45	0	0	0	0			13:45	0	0	0	0			
02:00	0	0	0	0			14:00	0	0	0	0			
02:15	0	0	0	0			14:15	0	0	0	0			
02:30	0	0	0	0			14:30	0	0	0	0			
02:45	0	0	0	0			14:45	0	0	0	0			
03:00	0	0	0	0			15:00	0	0	0	0			
03:15	0	0	0	0			15:15	0	0	0	0			
03:30	0	0	0	0			15:30	0	0	0	0			
03:45	0	0	0	0			15:45	0	0	0	0			
04:00	0	0	0	0			16:00	0	0	0	0			
04:15	0	0	0	0			16:15	1	0	0	0			
04:30	0	0	0	0			16:30	0	1	0	0			
04:45	0	0	0	0			16:45	0	1	0	1			
05:00	0	0	0	0			17:00	0	0	0	0			
05:15	0	0	0	0			17:15	0	1	0	0			
05:30	0	0	0	0			17:30	0	0	0	0			
05:45	0	0	0	0			17:45	0	0	1	0			
06:00	0	0	0	0			18:00	0	0	0	0			
06:15	0	0	0	0			18:15	0	0	0	0			
06:30	0	0	0	0			18:30	0	0	0	0			
06:45	0	0	0	0			18:45	0	0	0	0			
07:00	0	0	0	0	1	1	19:00	0	0	0	0			
07:15	0	0	0	0			19:15	0	0	0	0			
07:30	1	0	0	0			19:30	0	0	0	0			
07:45	0	1	0	0			19:45	0	0	0	0			
08:00	0	0	0	0			20:00	0	0	0	0			
08:15	0	0	0	0			20:15	0	0	0	0			
08:30	0	0	0	0			20:30	0	1	0	0			
08:45	0	0	0	0			20:45	0	0	1	0			
09:00	0	0	0	0			21:00	0	0	0	0			
09:15	0	0	0	0			21:15	0	0	0	0			
09:30	0	0	0	0			21:30	0	0	0	0			
09:45	0	0	0	0			21:45	0	0	0	0			
10:00	0	0	0	0	1	1	22:00	0	0	0	0			
10:15	1	0	0	0			22:15	0	0	0	0			
10:30	0	0	0	0			22:30	0	0	0	0			
10:45	0	1	0	0			22:45	0	0	0	0			
11:00	0	0	0	0			23:00	0	0	0	0			
11:15	0	0	0	0			23:15	0	0	0	0			
11:30	0	0	0	0			23:30	1	0	0	0			
11:45	0	0	0	0			23:45	0	1	0	0			
TOTALS	3	1			4		TOTALS	2	3			5		
SPLIT %	75.0%	25.0%			44.4%		SPLIT %	40.0%	60.0%			55.6%		

DAILY TOTALS					NB	SB						EB	WB	Total
					5	4						0	0	9
AM Peak Hour							PM Peak Hour	15:30	16:30			15:45		
AM Pk Volume	1	1			2		PM Pk Volume	1	2			2		
Pk Hr Factor	0.250	0.250			0.250		Pk Hr Factor	0.250	0.500			0.500		
7 - 9 Volume	1	0	0	0	1		4 - 6 Volume	1	2	0	0	3		
7 - 9 Peak Hour	07:00				07:00		4 - 6 Peak Hour	16:00	16:30			16:00		
7 - 9 Pk Volume	1	0	0	0	1		4 - 6 Pk Volume	1	2	0	0	2		
Pk Hr Factor	0.250	0.000	0.000	0.000	0.250		Pk Hr Factor	0.250	0.500	0.000	0.000	0.500		



Short Term Station 3018016

In Warren County

Located on 002100

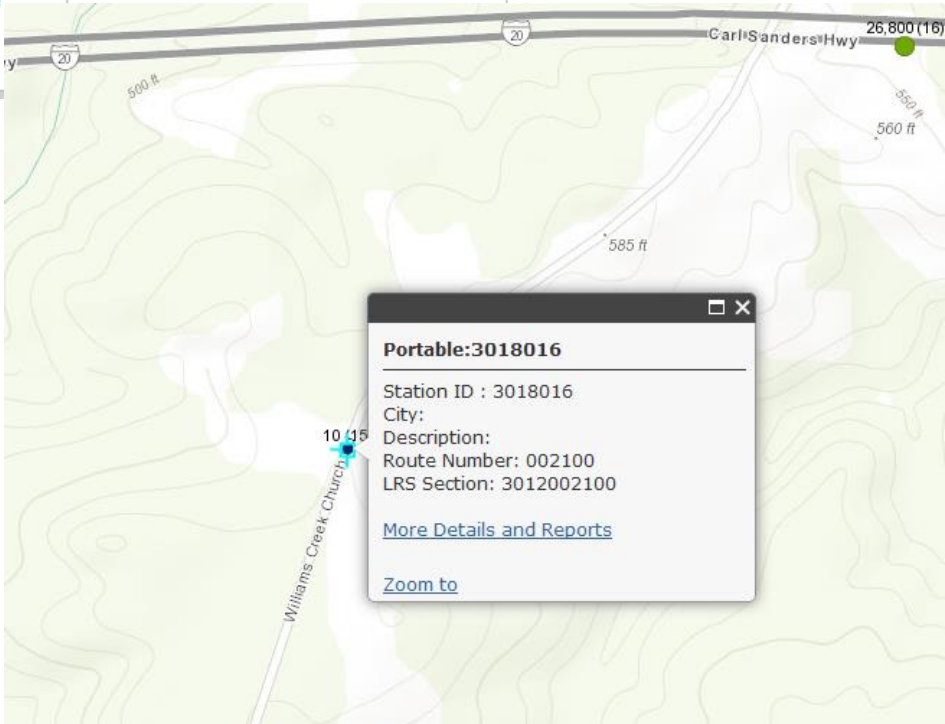
LRS ID: 3012002100


Referencing

Annual Statistics

Surveys

About Station 3018016		
Station ID	3018016	
County	Warren	
City		
Road		
Road functional class	rural - Local	
Description		
Routes	Route Number	002100
	Concurrent Route Number	
	Concurrent Route 2	
	Concurrent Route 3	
LRS Section ID	3012002100 @ 0.000 Miles	
Traffic Segment	0 0.000 to 1.310 Miles	
Coordinate (Lat/Lon)	33.499000, -82.755500	
Map Reference		
Camera ID		





Short Term Station 3018016

In Warren County

Located on 002100

LRS ID: 3012002100

Referencing

Annual Statistics

Surveys

Volume				Trucks			
2015	10	<div></div>	Est. from previous years				
2014	10	<div></div>	Est. from last year				
2013	10	<div></div>	Est. from last year				
2012	10	<div></div>	1 - 6 days				
2011	20	<div></div>	Est. from last year				

Key Annual Trends							
Year	Annual Average Daily Traffic	% APR Change	Annual Average Daily Truck Traffic	% Trucks	K Factor	D Factor	85th Pctl Speed
2017		0.00					
2016							
2015	10						
2014	10						
2013	10						
2012	10						
2011	20						
2010							
2009							
2008							
2007							

**Short Term Station 3010187**In **Warren** CountyLocated on **018500**LRS ID: **3012018500**

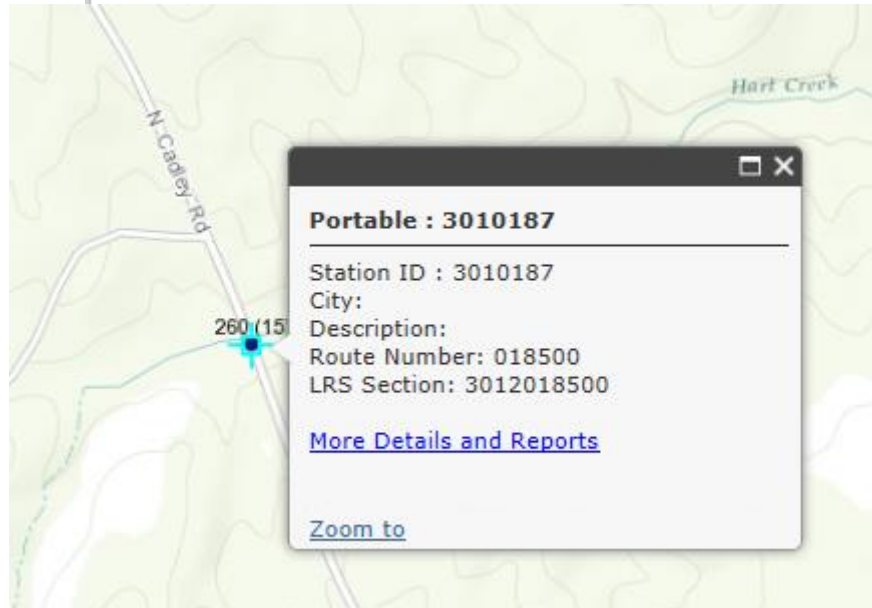
Referencing

Annual Statistics

Surveys

About Station 3010187

Station ID	3010187	
County	Warren	
City		
Road		
Road functional class	rural - Major Collector	
Description		
Routes	Route Number	018500
	Concurrent Route Number	
	Concurrent Route 2	
	Concurrent Route 3	
LRS Section ID	3012018500 @ 0.000 Miles	
Traffic Segment	0 0.400 to 3.080 Miles	
Coordinate (Lat/Lon)	33.486400, -82.708500	
Map Reference		
Camera ID		

**Short Term Station 3010187**In **Warren** CountyLocated on **018500**LRS ID: **3012018500**

Referencing

Annual Statistics

Surveys


Volume

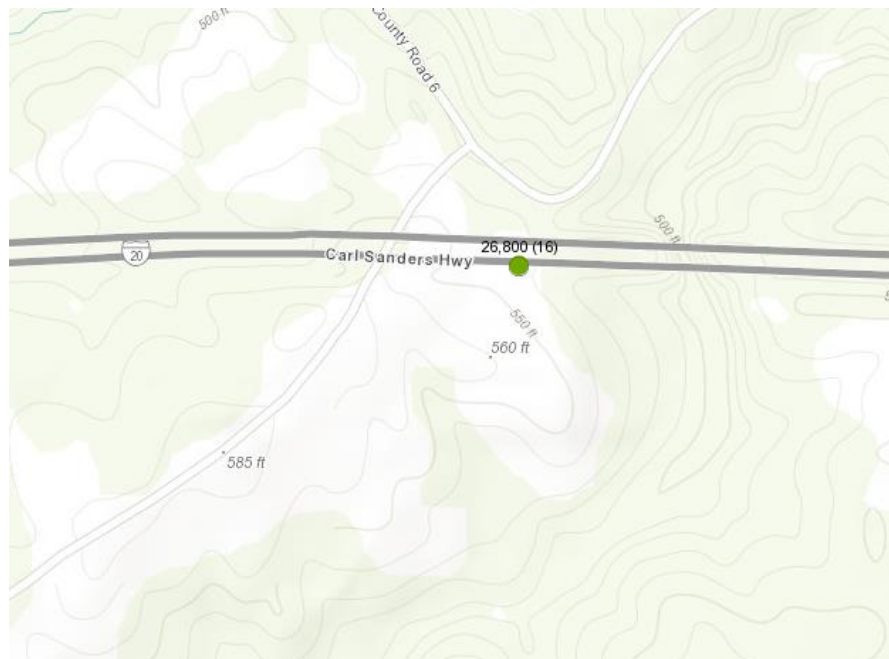
2017	-		
2016	270	<div></div>	Est. from previous years
2015	260	<div></div>	Est. from last year
2014	250	<div></div>	1 - 6 days
2013	270	<div></div>	Est. from last year
2012	270	<div></div>	Est. from last year
2011	270	<div></div>	Est. from last year
2010	280	<div></div>	1 - 6 days
2009	250	<div></div>	Est. from last year
2008	250	<div></div>	Est. from last year
2007	260	<div></div>	Est. from last year
2006	230	<div></div>	1 - 6 days
2005	280	<div></div>	1 - 6 days
2004	270	<div></div>	1 - 6 days
2003	230	<div></div>	1 - 6 days
2002	300	<div></div>	Est. from last year
2001	300	<div></div>	Est. from last year
2000	300	<div></div>	1 - 6 days
1999	300	<div></div>	Est. from last year
1998	500	<div></div>	1 - 6 days
1997	500	<div></div>	1 - 6 days
1996	500	<div></div>	1 - 6 days
1995	500	<div></div>	1 - 6 days
1994	500	<div></div>	1 - 6 days
1993	400	<div></div>	1 - 6 days
1992	414	<div></div>	1 - 6 days
1991	336	<div></div>	1 - 6 days
1990	335	<div></div>	1 - 6 days

Trucks

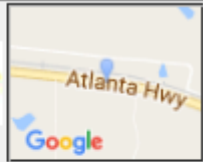
2017	-		
2016	36	<div></div>	Est. from previous years
2015	34	<div></div>	Est. from previous years
2014	32	<div></div>	Est. from previous years
2013	35	<div></div>	Est. from last year

I-20 count, east of Williams Creek Church Rd interchange

	
Continuous Station 301-0196 In Warren County Located on 00000020 at 4.610 Miles LRS ID: 3011040200 I-20 E of US278/SR12/ATL Hwy @Williams Cr Ch Rd (Norwood)	
Referencing	Annual Statistics
About Station 301-0196	
Station ID	301-0196
County	Warren
City	Norwood
Road	I-20
Road functional class	rural - Interstate
Description	I-20 E of US278/SR12/ATL Hwy @Williams Cr Ch Rd
Routes	Route Number 00000020 Concurrent Route Number Concurrent Route 2 Concurrent Route 3
LRS Section ID	3011040200 @ 4.610 Miles
Traffic Segment	0 0.000 to 0.000 Miles
Coordinate (Lat/Lon)	33.504000, -82.747200
Map Reference	
Camera ID	



Volume				Trucks			
2017	-			2017	-		
2016	26800		Continuous	2016	4901		Continuous
2015	25600		Continuous	2015	5612		Continuous
2014	24500		Continuous	2014	5905		Continuous
2013	23325		Continuous	2013	5740		Continuous
2012	23030		1 - 6 days	2012	5695		1 - 6 days
2011	22870		1 - 6 days	2011	5631		1 - 6 days
2010	25110		1 - 6 days	2010	5846		1 - 6 days
2009	22920		1 - 6 days	2009	5691		1 - 6 days
2008	22450		1 - 6 days	2008	6706		1 - 6 days
2007	24477		1 - 6 days	2007	5874		Est. from previous years
2006	23696		1 - 6 days	2006	5687		Est. from previous years
2005	23230		1 - 6 days	2005	5343		Est. from previous years
2004	24490		1 - 6 days				
2003	23530		Est. from last year				
2002	19170		Est. from last year				
2001	21300		Est. from last year				
2000	21100		Est. from last year				
1999	21100		1 - 6 days				
1998	17000		1 - 6 days				
1997	20700		1 - 6 days				
1996	19700		1 - 6 days				
1995	18400		1 - 6 days				
1994	19900		1 - 6 days				
1993	14500		1 - 6 days				
1992	18907		1 - 6 days				
1991	16280		1 - 6 days				
1990	14223		1 - 6 days				
Key Annual Trends							
Year	Annual Average Daily Traffic	% APR Change	Annual Average Daily Truck Traffic	% Trucks	K Factor	D Factor	85th Pctl Speed
2017		3.36					
2016	26800		4901	18.29	11.10	53.06	
2015	25600		5612	21.92	12.98	57.87	



Short Term Station 3010109
In **Warren** County
Located on **001200**
LRS ID: **3011001200**

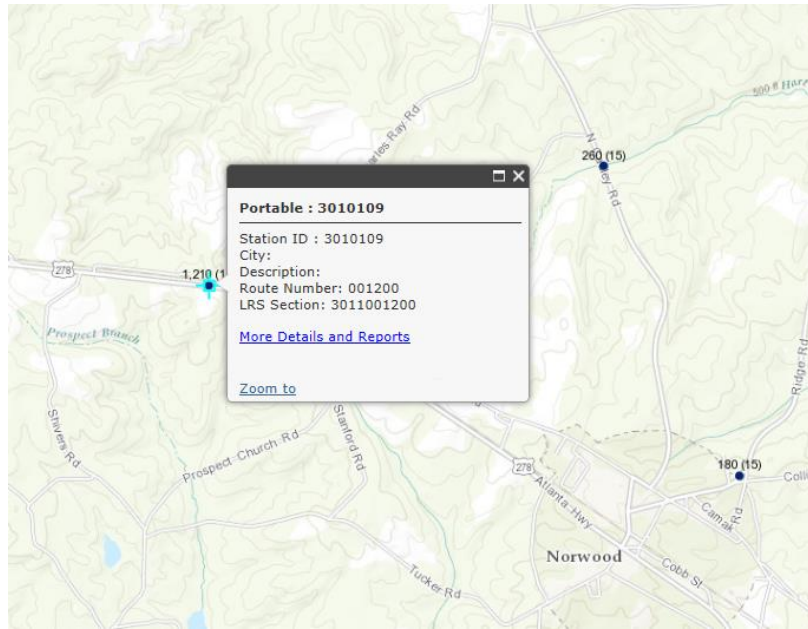
Referencing

Annual Statistics

Surveys

About Station 3010109

Station ID	3010109		
County	Warren		
City			
Road			
Road functional class	rural - Minor Arterial		
Description			
Routes	Route Number	001200	
	Concurrent Route Number		
	Concurrent Route 2		
	Concurrent Route 3		
LRS Section ID	3011001200 @ 0.000 Miles		
Traffic Segment	0 2.840 to 8.200 Miles		
Coordinate (Lat/Lon)	33.478800, -82.738700		
Map Reference			
Camera ID			



Short Term Station 3010109
In **Warren** County
Located on **001200**
LRS ID: **3011001200**

Referencing

Annual Statistics

Surveys

Volume

2017	-		
2016	1410	<div></div>	Est. from last year
2015	1210	<div></div>	Est. from last year
2014	1150	<div></div>	1 - 6 days
2013	1280	<div></div>	Est. from last year
2012	1280	<div></div>	1 - 6 days
2011	1200	<div></div>	Est. from last year
2010	1220	<div></div>	1 - 6 days
2009	1380	<div></div>	Est. from last year
2008	1360	<div></div>	1 - 6 days
2007	1410	<div></div>	1 - 6 days
2006	1410	<div></div>	1 - 6 days
2005	1510	<div></div>	1 - 6 days
2004	1450	<div></div>	1 - 6 days
2003	1530	<div></div>	1 - 6 days
2002	1622	<div></div>	1 - 6 days
2001	1400	<div></div>	1 - 6 days
2000	1500	<div></div>	Est. from last year
1999	1400	<div></div>	Est. from last year
1998	1300	<div></div>	1 - 6 days
1997	1500	<div></div>	1 - 6 days
1996	1600	<div></div>	1 - 6 days
1995	1300	<div></div>	1 - 6 days
1994	1300	<div></div>	1 - 6 days
1993	1200	<div></div>	1 - 6 days
1992	1353	<div></div>	1 - 6 days
1991	1367	<div></div>	1 - 6 days
1990	1092	<div></div>	1 - 6 days

Trucks

2017	-		
2016	530	<div></div>	Est. from last year
2015	546	<div></div>	Est. from previous years
2014	520	<div></div>	Est. from last year



Short Term Station 3010109
In **Warren** County
Located on **001200**
LRS ID: **3011001200**

Referencing

Annual Statistics

Surveys

Year	Month	Office Status	Summary	Volume By Hour	Class By Hour	Speed	Turning Movements
2010	Apr	Count accepted	Summary By Day	All North South		<input checked="" type="checkbox"/>	
2012	Sep	Count accepted	Summary By Day	All North South		<input checked="" type="checkbox"/>	
2014	Jan	Count accepted	Summary By Day	All North South	All North South	All North South	<input checked="" type="checkbox"/>
2016	Sep	Count accepted	Summary By Day	All North South	All North South	All North South	<input checked="" type="checkbox"/>

Volume By Hour

Direction: All Directions

Time	Mon Sep 26	Tue Sep 27	Wed Sep 28	Total	Avg	Pct	Graphic
12:00 am		7	10	17	8	0.59	
1:00 am		5	6	11	6	0.38	
2:00 am		8	16	24	12	0.84	
3:00 am		18	6	24	12	0.84	
4:00 am		19	20	39	20	1.36	
5:00 am		42	39	81	40	2.83	
6:00 am		75	89	164	82	5.73	
7:00 am		106	78	184	92	6.43	
8:00 am		106	90	196	98	6.85	
9:00 am		94	78	172	86	6.01	
10:00 am		94	95	189	94	6.60	
11:00 am		92	87	179	90	6.25	
12:00 pm	111	95		206	103	7.20	
1:00 pm	93	68		161	80	5.62	
2:00 pm	111	99		210	105	7.33	
3:00 pm	97	97		194	97	6.78	
4:00 pm	98	97		195	98	6.81	
5:00 pm	100	96		196	98	6.85	
6:00 pm	68	64		132	66	4.61	
7:00 pm	63	48		111	56	3.88	
8:00 pm	42	36		78	39	2.72	
9:00 pm	25	21		46	23	1.61	
10:00 pm	12	17		29	14	1.01	
11:00 pm	11	14		25	12	0.87	
Total	831	1418	614	2863	1431		
SF	0.992	0.992	0.992				
DF	1.009		0.977				
AADT		1392			1409		



Referencing Annual Statistics Surveys

Year	Month	Office Status	Summary	Volume By Hour	Class By Hour	Speed	Turning Movements
2010	Apr	Count accepted	Summary By Day	All North South		<input checked="" type="checkbox"/>	
2012	Sep	Count accepted	Summary By Day	All North South		<input checked="" type="checkbox"/>	
2014	Jan	Count accepted	Summary By Day	All North South	All North South	All North South	<input checked="" type="checkbox"/>
2016	Sep	Count accepted	Summary By Day	All North South	All North South	All North South	<input checked="" type="checkbox"/>

Volume By Hour
Direction: All Directions

Time	Mon Sep 26	Tue Sep 27	Wed Sep 28	Total	Avg	Pct	Graphic
12:00 am		7	10	17	8	0.59	
1:00 am		5	6	11	6	0.38	
2:00 am		8	16	24	12	0.84	
3:00 am		18	6	24	12	0.84	
4:00 am		19	20	39	20	1.36	
5:00 am		42	39	81	40	2.83	
6:00 am		75	89	164	82	5.73	
7:00 am		106	78	184	92	6.43	
8:00 am		106	90	196	98	6.85	
9:00 am		94	78	172	86	6.01	
10:00 am		94	95	189	94	6.60	
11:00 am		92	87	179	90	6.25	
12:00 pm	111	95		206	103	7.20	
1:00 pm	93	68		161	80	5.62	
2:00 pm	111	99		210	105	7.33	
3:00 pm	97	97		194	97	6.78	
4:00 pm	98	97		195	98	6.81	
5:00 pm	100	96		196	98	6.85	
6:00 pm	68	64		132	66	4.61	
7:00 pm	63	48		111	56	3.88	
8:00 pm	42	36		78	39	2.72	
9:00 pm	25	21		46	23	1.61	
10:00 pm	12	17		29	14	1.01	
11:00 pm	11	14		25	12	0.87	
Total	831	1418	614	2863	1431		
SF	0.992	0.992	0.992				
DF	1.009	0.990	0.977				
AADT		1392			1409		

Count Station: GDOT #3010187
 Street: Cadley Rd
 Location: South of Charles Ray Rd
 Source: GDOT

YEAR	ADT	TREND
1998		300
1999		300
2000	300	300
2001		300
2002		300
2003	230	300
2004	270	300
2005	280	300
2006	230	300
2007		300
2008		300
2009		300
2010	280	300
2011		300
2012		300
2013		300
2014	250	300
2015		300
2016		200
2017		200
2018		200
2019		200
2020		200
2021		200
2022		200
2023		200
2024		200

15-Years of Count Data

Trend Annual Historic Compound Growth Rate

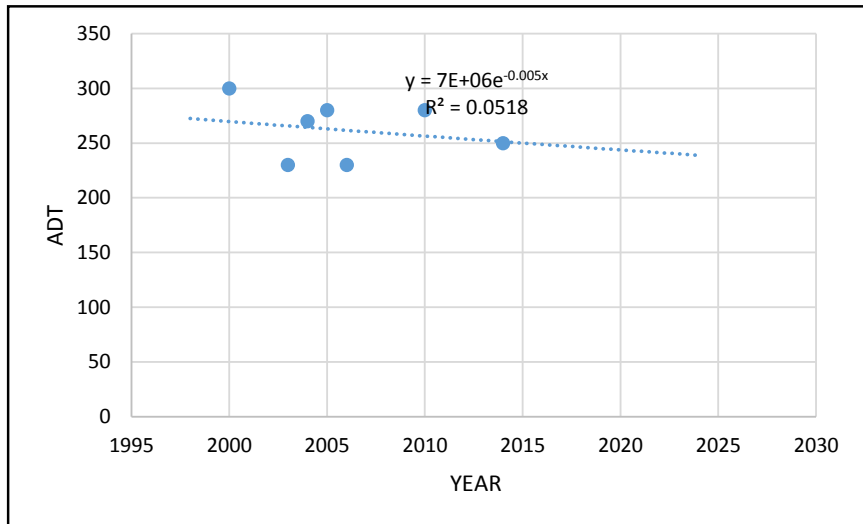
0.00%

Design Year

2044

Trend Annual Compound Growth Rate (Last year of data to Design year)

-1.34%



Count Station: GDOT #3011040200
 Street: I-20
 Location: East of US 278
 Source: GDOT

YEAR	ADT	TREND
1998		22400
1999		22500
2000		22600
2001		22800
2002		22900
2003		23000
2004	24490	23200
2005	23230	23300
2006	23696	23500
2007	24477	23600
2008	22450	23700
2009	22920	23900
2010	25110	24000
2011	22870	24100
2012	23030	24300
2013	23325	24400
2014	24500	24600
2015	25600	24700
2016	26800	24900
2017		25000
2018		25200
2019		25300
2020		25500
2021		25600
2022		25800
2023		25900
2024		26100

15-Years of Count Data

Trend Annual Historic Compound Growth Rate

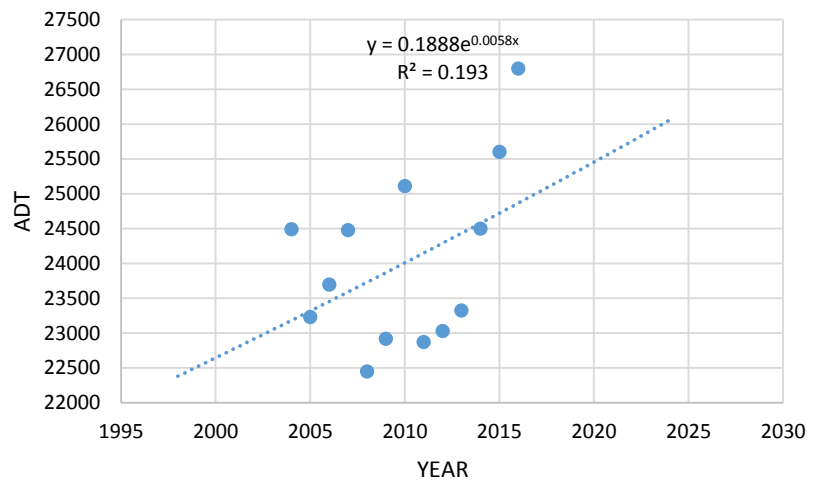
0.61%

Design Year

2044

Trend Annual Compound Growth Rate (Last year of data to Design year)

0.72%



Count Station: GDOT #3010109
 Street: US 278
 Location: West of Norwood
 Source: GDOT

YEAR	ADT	TREND
1998		1600
1999		1600
2000		1500
2001	1400	1500
2002	1622	1500
2003	1530	1500
2004	1450	1500
2005	1510	1400
2006	1410	1400
2007	1410	1400
2008	1360	1400
2009		1400
2010	1220	1300
2011		1300
2012	1280	1300
2013		1300
2014	1150	1300
2015		1200
2016	1409	1200
2017		1200
2018		1200
2019		1200
2020		1200
2021		1100
2022		1100
2023		1100
2024		1100

15-Years of Count Data

Trend Annual Historic Compound Growth Rate

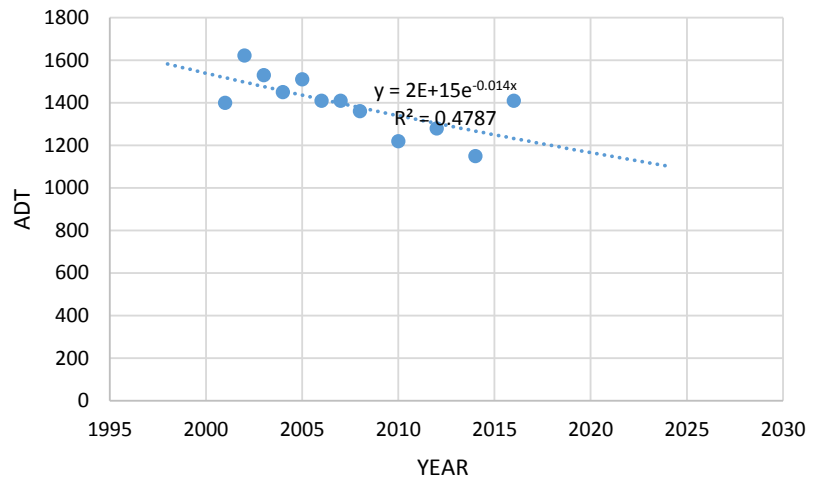
-1.37%

Design Year

2044

Trend Annual Compound Growth Rate (Last year of data to Design year)

-1.72%





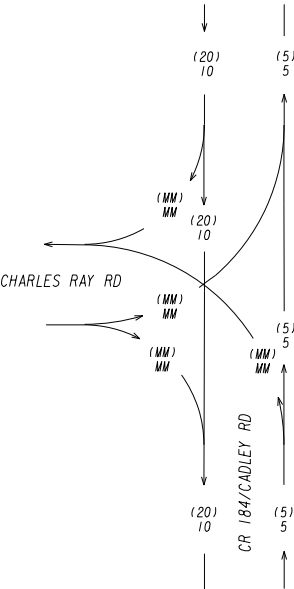
WILLIAMS CREEK CHURCH RD, SOUTH OF I-20

PEAK HOUR TRUCK %
T= 100% [AM] 100% [PM]
SU= 100% [AM] 100% [PM]
COMB= 0.0% [AM] 0.0% [PM]



CR 184/CADLEY RD, NORTH OF CHARLES RAY RD

PEAK HOUR TRUCK %
T= 14.0% [AM] 4.5% [PM]
SU= 7.0% [AM] 4.5% [PM]
COMB= 7.0% [AM] 0.0% [PM]



DESIGN TRAFFIC
2019 AM DHV = 000
2019 PM DHV = (000)

REVISION DATES

3/5/19		

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

CHECKED:	DATE:	
BACKCHECKED:	DATE:	
CORRECTED:	DATE:	
VERIFIED:	DATE:	

DRAWING No.

10-0001

P.I. NO. 0008680

EXISTING 2019 DHV



WARREN COUNTY



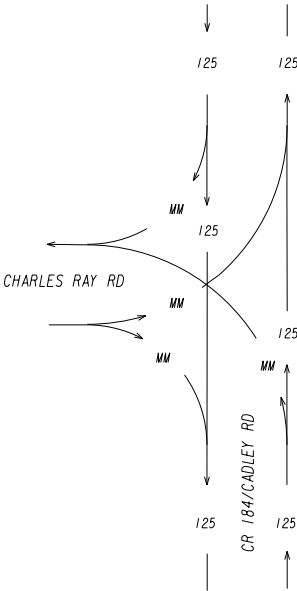
WILLIAMS CREEK CHURCH RD. SOUTH OF I-20

24-HR TRUCK %
T=27.0%
SU=27.0%
COMB=0.0%



CR 184/CADLEY RD. NORTH OF CHARLES RAY RD

24-HR TRUCK %
T=7.5%
SU=5.5%
COMB=2.0%



P.I. NO. 0008680

EXISTING 2019 AADT



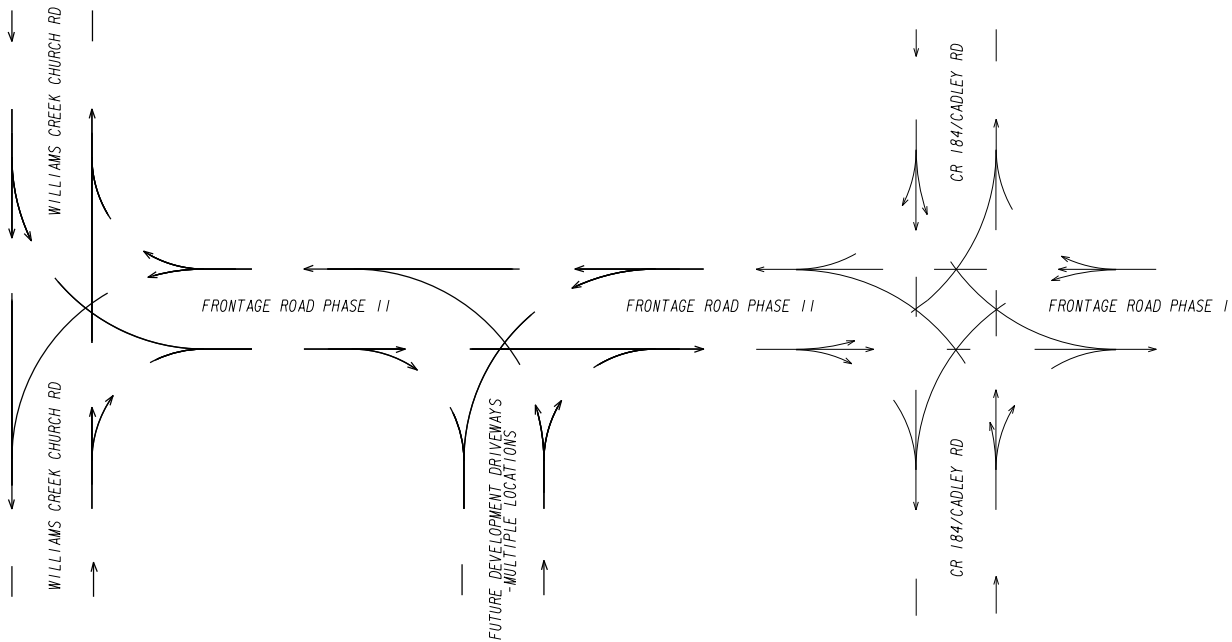
WARREN COUNTY

REVISION DATES

TRAFFIC DIAGRAM

I-20 FRONTAGE ROAD FROM CADLEY RD
TO WILLIAMS CREEK CHURCH RD

CHECKED:	DATE:	DRAWING No.
BACKCHECKED:	DATE:	10-0002
CORRECTED:	DATE:	
VERIFIED:	DATE:	



Appendix D

Antweiler, Andrew

From: Washington, Andre M. <AWashington@dot.ga.gov>
Sent: Wednesday, November 14, 2018 3:00 PM
To: Wilkinson, Eric
Cc: Antweiler, Andrew; McQueen, Thomas
Subject: RE: 0008680 - traffic projection request
Attachments: PI0008680_Traffic Data Collection Memo_102918.pdf

Eric,
Based on the attach Data Collection Map Count Location Document submitted to us, we find the 48-hour vehicle classification count for the proposed project to be satisfactory and approve the attached Data Collection Map Count Location Document for P.I. # 0008680. Please be mindful of our Traffic Count Rules regarding the collection of traffic count data within our Design Traffic Forecasting Manual.

Thanks
Andre Washington

Office of Planning
5th Floor, One Georgia Center
600 West Peachtree, NW
Atlanta, Georgia 30308
(404) 631-1925

For More Information On Our Design Traffic Forecasting Manual, Please Visit Our Link At:
<http://www.dot.ga.gov/PartnerSmart/DesignManuals/Planning/GDOT%20Design%20Traffic%20Forecasting%20Manual.pdf>

From: Washington, Andre M.
Sent: Thursday, November 8, 2018 4:04 PM
To: Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: McQueen, Thomas <tmcqueen@dot.ga.gov>
Subject: FW: 0008680 - traffic projection request

Eric,
I will be the point of contact for the above project. Please continue to Cc Tom McQueen on future correspondence related to this project.

Thanks
Andre Washington

Office of Planning
5th Floor, One Georgia Center
600 West Peachtree, NW
Atlanta, Georgia 30308
(404) 631-1925

For More Information On Our Design Traffic Forecasting Manual, Please Visit Our Link At:

From: Wilkinson, Eric
Sent: Thursday, November 8, 2018 8:47 AM
To: Washington, Andre M. <AWashington@dot.ga.gov>
Subject: FW: 0008680 - traffic projection request

Andre,

Attached please find the traffic projections request. Please review and approve if you see fit. If you need anything further please let me know. This is a TIA project that is blended with federal funds.

Thanks

Eric Wilkinson
TIA Regional Coordinator



Office of TIA
643 HWY 15 South
Tennille, GA 31089
(478)538-8522

From: Antweiler, Andrew <AntweilerA@pondco.com>
Sent: Monday, October 29, 2018 1:22 PM
To: Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: Sabia, Daniel <SabiaD@pondco.com>
Subject: 0008680 - traffic projection request

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Eric,

Good afternoon. I am contacting you to request your assistance in submitting the traffic projections request form to GDOT's Office of Planning. We are requesting to initiate the traffic forecasting task this project.

Attached please find two files:

- ε Traffic Projections Request Form – filled out with information we know
- ε Traffic Data Collection Memo – outlining proposed traffic counts

If you find these acceptable, can you please forward them to the Office of Planning.

I will be leading the traffic projections task for Pond. Please let Daniel or me know if you have any questions or need any additional information. Thank you,

Andrew Antweiler, PE, PTOE
Senior Project Manager | Transportation



Pond | 3500 Parkway Lane | Suite 500
Peachtree Corners, Georgia 30092
p 678.336.7740 | f 678.336.7744 | direct 678.292.1106 | mobile 470.242.9879
www.pondco.com

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■ **SE Design Firm of the Year** | Engineering News-Record (ENR)



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Hands-free cell phone use now law when driving in Georgia. When drivers use cell phones and other electronic devices it must be with hands-free technology. It is illegal for a driver to hold a phone in their hand or use any part of their body to support a phone. There are many facets to the new law. For details, visit <https://www.gahighwaysafety.org/>

Antweiler, Andrew

From: Washington, Andre M. <AWashington@dot.ga.gov>
Sent: Tuesday, March 05, 2019 3:23 PM
To: Wilkinson, Eric
Cc: Antweiler, Andrew; Sabia, Daniel; McQueen, Thomas
Subject: RE: 0008680 - Traffic Data Report Memo - revised memo
Attachments: PI0008680_Traffic Data Report Memo_030519_revised.pdf

EXTERNAL EMAIL

Eric,
Based on the information furnished, we find the resubmitted attached Traffic Forecasting Methodology Document and Existing Traffic Diagrams to be satisfactory and approve the Traffic Forecasting Methodology Document and Existing Traffic Diagrams. Please consider this a notice to proceed with the Traffic Forecasting phase for the above project.

Thanks
Andre Washington

Office of Planning
5th Floor, One Georgia Center
600 West Peachtree, NW
Atlanta, Georgia 30308
(404) 631-1925

For More Information On Our Design Traffic Forecasting Manual, Please Visit Our Link At:

<http://www.dot.ga.gov/PartnerSmart/DesignManuals/Planning/GDOT%20Design%20Traffic%20Forecasting%20Manual.pdf>

From: Antweiler, Andrew <AntweilerA@pondco.com>
Sent: Tuesday, March 5, 2019 12:04 PM
To: Washington, Andre M. <AWashington@dot.ga.gov>; Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: Sabia, Daniel <SabiaD@pondco.com>; McQueen, Thomas <tmcqueen@dot.ga.gov>
Subject: RE: 0008680 - Traffic Data Report Memo - revised memo

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Andre,

Thank you for your review. Please find attached a revised memo addressing your comments.

Please let me know if you have any questions.

Andrew Antweiler, PE, PTOE
Senior Project Manager | Transportation

p 678.336.7740 | f 678.336.7744 | direct 678.292.1106 | mobile 470.242.9879

From: Washington, Andre M. <AWashington@dot.ga.gov>
Sent: Monday, March 04, 2019 11:52 AM
To: Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: Sabia, Daniel <SabiaD@pondco.com>; Antweiler, Andrew <AntweilerA@pondco.com>; McQueen, Thomas <tmcqueen@dot.ga.gov>
Subject: RE: 0008680 - Traffic Data Report Memo - submit for review

EXTERNAL EMAIL

Eric,
Attached are the findings of the Methodology Document and Existing Traffic Diagrams submitted to us for the above project.

Thanks
Andre Washington

Office of Planning
5th Floor, One Georgia Center
600 West Peachtree, NW
Atlanta, Georgia 30308
(404) 631-1925

For More Information On Our Design Traffic Forecasting Manual, Please Visit Our Link At:

<http://www.dot.ga.gov/PartnerSmart/DesignManuals/Planning/GDOT%20Design%20Traffic%20Forecasting%20Manual.pdf>

From: Washington, Andre M.
Sent: Wednesday, February 27, 2019 3:16 PM
To: 'Antweiler, Andrew' <AntweilerA@pondco.com>
Cc: Sabia, Daniel <SabiaD@pondco.com>; Wilkinson, Eric <ewilkinson@dot.ga.gov>; McQueen, Thomas <tmcqueen@dot.ga.gov>
Subject: RE: 0008680 - Traffic Data Report Memo - submit for review

Andrew,
The above project is currently under review. Initial comments should be provided by the end of next week.

Thanks
Andre Washington

Office of Planning
5th Floor, One Georgia Center
600 West Peachtree, NW
Atlanta, Georgia 30308
(404) 631-1925

For More Information On Our Design Traffic Forecasting Manual, Please Visit Our Link At:

<http://www.dot.ga.gov/PartnerSmart/DesignManuals/Planning/GDOT%20Design%20Traffic%20Forecasting%20Manual.pdf>

From: Antweiler, Andrew <AntweilerA@pondco.com>
Sent: Wednesday, February 27, 2019 12:56 PM
To: Washington, Andre M. <AWashington@dot.ga.gov>; Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: McQueen, Thomas <tmcqueen@dot.ga.gov>; Sabia, Daniel <SabiaD@pondco.com>
Subject: RE: 0008680 - Traffic Data Report Memo - submit for review

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Andre,

Good afternoon. I wanted to check on the status of review of this submit. Can you confirm it is in process? Thank you,

Andrew Antweiler, PE, PTOE
Senior Project Manager | Transportation

p 678.336.7740 | f 678.336.7744 | direct 678.292.1106 | mobile 470.242.9879



From: Antweiler, Andrew
Sent: Tuesday, February 12, 2019 1:13 PM
To: Washington, Andre M. <AWashington@dot.ga.gov>; Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: McQueen, Thomas <tmcqueen@dot.ga.gov>; Daniel Sabia (SabiaD@pondco.com) <SabiaD@pondco.com>
Subject: RE: 0008680 - Traffic Data Report Memo - submit for review

Andre,

Please find attached the Traffic Data Report for this project. Please review and let me know if you have any questions or comments. Thank you,

Andrew Antweiler, PE, PTOE
Senior Project Manager | Transportation

p 678.336.7740 | f 678.336.7744 | direct 678.292.1106 | mobile 470.242.9879



From: Washington, Andre M. <AWashington@dot.ga.gov>
Sent: Wednesday, November 14, 2018 3:00 PM
To: Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: Antweiler, Andrew <AntweilerA@pondco.com>; McQueen, Thomas <tmcqueen@dot.ga.gov>
Subject: RE: 0008680 - traffic projection request

Eric,
Based on the attach Data Collection Map Count Location Document submitted to us, we find the 48-hour vehicle classification count for the proposed project to be satisfactory and approve the attached Data Collection Map Count

Location Document for P.I. # 0008680. Please be mindful of our Traffic Count Rules regarding the collection of traffic count data within our Design Traffic Forecasting Manual.

Thanks

Andre Washington



Office of Planning

5th Floor, One Georgia Center

600 West Peachtree, NW

Atlanta, Georgia 30308

(404) 631-1925

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Sent: Thursday, November 8, 2018 4:04 PM

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Cc: McQueen, Thomas <tmcqueen@dot.ga.gov>

Subject: FW: 0008680 - traffic projection request

Eric,

I will be the point of contact for the above project. Please continue to Cc Tom McQueen on future correspondence related to this project.

Thanks

Andre Washington



Office of Planning

5th Floor, One Georgia Center

600 West Peachtree, NW

Atlanta, Georgia 30308

(404) 631-1925

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Subject: FW: 0008680 - traffic projection request

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Eric Wilkinson
TIA Regional Coordinator

Office of TIA
643 HWY 15 South
Tennille, GA 31089
(478)538-8522

From: Antweiler, Andrew <AntweilerA@pondco.com>
Sent: Monday, October 29, 2018 1:22 PM
To: Wilkinson, Eric <ewilkinson@dot.ga.gov>
Cc: Sabia, Daniel <SabiaD@pondco.com>
Subject: 0008680 - traffic projection request

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- ε Traffic Projections Request Form – filled out with information we know
- ε Traffic Data Collection Memo – outlining proposed traffic counts

If you find these acceptable, can you please forward them to the Office of Planning.

I will be leading the traffic projections task for Pond. Please let Daniel or me know if you have any questions or need any additional information. Thank you,

Andrew Antweiler, PE, PTOE
Senior Project Manager | Transportation



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Hands-free cell phone use now law when driving in Georgia. When drivers use cell phones and other electronic devices it

FILE: Warren County
P.I. # 0008680

DATE: May 6, 2019

FROM: Paul Tanner, State Transportation Planning Administrator

TO: Kimberly Nesbitt, State Program Delivery Administrator
Attention: Eric Wilkinson

SUBJECT: **Design Traffic Forecasts** for I-20 FRONTAGE RD FM CR 187/RIDGE RD TO SR 80 -PHASE II - TIA

Per request, we have reviewed the consultant's design traffic forecasts for the above project. Based on the information furnished, we find the design traffic forecasts to be satisfactory, and the design traffic forecasting task to be complete for the above project. The reviewed and approved design traffic forecasts for the above project is attached in 0008680_10series_050619.pdf, and 0008680_10series_050619.dgn.

If you have any questions concerning this information please contact Andre Washington at 404-631-1925.

Andre Washington
Office Of Planning
5th Floor, One Georgia Center
404-631-1925

RPT/AMW

TE Report

Appendix C

Traffic Study

I-20 Frontage Road Phase II (new location) from Cadley Road to William Creek Church Rd

Intersection Traffic Volumes

Cadley Road at I-20 WB Ramp

A.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			n/a Eastbound			I-20 WB Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2017)	5	10			5	10				5		5
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308
Development (Phase 1 Frontage)	70	10	0	0	15	0	0	0	0	110	0	0
Base Condition (2044)	75	25	0	0	20	15	0	0	0	115	0	5
Project Trips:												
Trip Distribution IN					5%					35%		
Trip Distribution OUT	35%	5%										
Development	20	5	0	0	10	0	0	0	0	75	0	0
												0
Total Project Trips	20	5	0	0	10	0	0	0	0	75	0	0
Buildout Total (2044)	95	30	0	0	30	15	0	0	0	190	0	5

P.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			n/a Eastbound			I-20 WB Ramp Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2017)	5	20			5	5				5		5
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308
Development (Phase 1 Frontage)	95	15	0	0	10	0	0	0	0	70	0	0
Base Condition (2044)	100	40	0	0	15	5	0	0	0	75	0	5
Project Trips:												
Trip Distribution IN					5%					35%		
Trip Distribution OUT	35%	5%										
Development	70	10	0	0	5	0	0	0	0	30	0	0
Total Project Trips	70	10	0	0	5	0	0	0	0	30	0	0
Buildout Total (2044)	170	50	0	0	20	5	0	0	0	105	0	5

Traffic Study

I-20 Frontage Road Phase II (new location) from Cadley Road to William Creek Church Rd

Intersection Traffic Volumes

Cadley Road at I-20 EB Ramp

A.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			I-20 EB Ramp Eastbound			n/a Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2017)		5	5	5	10		5		5			
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308
Development (Phase 1 Frontage)	0	80	70	0	130	0	0	0	110	0	0	0
Base Condition (2044)	0	85	75	5	145	0	5	0	115	0	0	0
Project Trips:												
Trip Distribution IN					40%				35%			
Trip Distribution OUT		40%	35%									
Development	0	25	25	0	85	0	0	0	75	0	0	0
Total Project Trips	0	25	25	0	85	0	0	0	75	0	0	0
Buildout Total (2044)	0	110	100	5	230	0	5	0	190	0	0	0

P.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			I-20 EB Ramp Eastbound			n/a Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2017)		10	5	5	5		10		5			
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308	1.308
Development (Phase 1 Frontage)	0	110	95	0	80	0	0	0	70	0	0	0
Base Condition (2044)	0	125	100	5	85	0	15	0	75	0	0	0
Project Trips:												
Trip Distribution IN					40%				35%			
Trip Distribution OUT		40%	35%									
Development	0	80	70	0	30	0	0	0	30	0	0	0
Total Project Trips	0	80	70	0	30	0	0	0	30	0	0	0
Buildout Total (2044)	0	205	170	5	115	0	15	0	105	0	0	0

Traffic Study

I-20 Frontage Road Phase II (new location) from Cadley Road to William Creek Church Rd

Intersection Traffic Volumes

Cadley Road at Eastern Tie-in for Frontage Road

A.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			Frontage Road - Phase 2 Eastbound			Frontage Road - Phase 1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)		5			10							
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Development (Phase 1 Frontage Rd)	0	0	30	240	0	0	0	0	0	20	0	145
Base Condition (2044)	0	5	30	240	15	0	0	0	0	20	0	145
Project Trips:												
Trip Distribution IN	20%					75%						
Trip Distribution OUT							75%		20%			
Development	45	0	0	0	0	160	50	0	10	0	0	0
Total Project Trips	45	0	0	0	0	160	50	0	10	0	0	0
Buildout Total (2044)	45	5	30	240	15	160	50	0	10	20	0	145

P.M. PEAK HOUR

Condition	Cadley Road Northbound			Cadley Road Southbound			Frontage Road - Phase 2 Eastbound			Frontage Road - Phase 1 Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)		10			20							
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Development (Phase 1 Frontage Rd)	0	0	20	155	0	0	0	0	0	30	0	205
Base Condition (2044)	0	15	20	155	25	0	0	0	0	30	0	205
Project Trips:												
Trip Distribution IN	20%					75%						
Trip Distribution OUT							75%		20%			
Development	15	0	0	0	0	60	150	0	40	0	0	0
Total Project Trips	15	0	0	0	0	60	150	0	40	0	0	0
Buildout Total (2044)	15	15	20	155	25	60	150	0	40	30	0	205

Traffic Study

I-20 Frontage Road Phase II (new location) from Cadley Road to William Creek Church Rd

Intersection Traffic Volumes

Frontage Road at Future Development Driveways (multiple locations)

A.M. PEAK HOUR

Condition	Development Driveways Northbound			n/a Southbound			Frontage Road Eastbound			Frontage Road Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)								0			0	
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Base Condition (2044)	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips:												
Trip Distribution IN									5%	95%		
Trip Distribution OUT	5%		95%									
Development	5	0	60	0	0	0	0	0	10	205	0	0
Total Project Trips	5	0	60	0	0	0	0	0	10	205	0	0
Buildout Total (2044)	5	0	60	0	0	0	0	0	10	205	0	0

P.M. PEAK HOUR

Condition	Development Driveways Northbound			n/a Southbound			Frontage Road Eastbound			Frontage Road Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)								0				
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Base Condition (2044)	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips:												
Trip Distribution IN									5%	95%		
Trip Distribution OUT	5%		95%									
Development	10	0	190	0	0	0	0	0	5	75	0	0
Total Project Trips	10	0	190	0	0	0	0	0	5	75	0	0
Buildout Total (2044)	10	0	190	0	0	0	0	0	5	75	0	0

Traffic Study

I-20 Frontage Road Phase II (new location) from Cadley Road to William Creek Church Rd

Intersection Traffic Volumes

Williams Creek Church Rd / Western Tie-in for Frontage Road

A.M. PEAK HOUR






Condition	WCChurch Rd Northbound			WCChurch Rd Southbound			n/a Eastbound			Frontage Road Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)		0	0	0	0			0			0	
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Base Condition (2044)	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips:												
Trip Distribution IN			5%									
Trip Distribution OUT										5%		
Development	0	0	10	0	0	0	0	0	0	5	0	0
Total Project Trips	0	0	10	0	0	0	0	0	0	5	0	0
Buildout Total (2044)	0	0	10	0	0	0	0	0	0	5	0	0






P.M. PEAK HOUR


Condition	WCChurch Rd Northbound			WCChurch Rd Southbound			n/a Eastbound			Frontage Road Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Volumes (2019)		0	0	0	0			0			0	
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth Factor	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282	1.282
Base Condition (2044)	0	0	0	0	0	0	0	0	0	0	0	0
Project Trips:												
Trip Distribution IN			5%									
Trip Distribution OUT										5%		
Development	0	0	5	0	0	0	0	0	0	10	0	0
Total Project Trips	0	0	5	0	0	0	0	0	0	10	0	0
Buildout Total (2044)	0	0	5	0	0	0	0	0	0	10	0	0





TE Report

Appendix D

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	5	0	0	0	0	5	5	5	10	0
Future Vol, veh/h	5	0	5	0	0	0	0	5	5	5	10	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	45	45	85	85	85	45	45	45	45	45	45
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	11	0	11	0	0	0	0	11	11	11	22	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	55	-	22				-	0	-	11	0	0
Stage 1	44	-	-				-	-	-	-	-	-
Stage 2	11	-	-				-	-	-	-	-	-
Critical Hdwy	6.5	-	6.3				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	-	3.39				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	933	0	1032				0	-	0	1557	-	0
Stage 1	958	0	-				0	-	0	-	-	0
Stage 2	991	0	-				0	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	926	0	1032				-	-	-	1557	-	-
Mov Cap-2 Maneuver	926	0	-				-	-	-	-	-	-
Stage 1	951	0	-				-	-	-	-	-	-
Stage 2	991	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	8.7						0			2.4		
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBL	SBT							
Capacity (veh/h)	-	926	1032	1557	-							
HCM Lane V/C Ratio	-	0.012	0.011	0.007	-							
HCM Control Delay (s)	-	8.9	8.5	7.3	0							
HCM Lane LOS	-	A	A	A	A							
HCM 95th %tile Q(veh)	-	0	0	0	-							






Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	5	5	10	0	0	5	10
Future Vol, veh/h	0	0	0	5	0	5	5	10	0	0	5	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	8	0	8	8	17	0	0	8	17
Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				41	-	17	8	0	-	-	-	0
Stage 1				33	-	-	-	-	-	-	-	-
Stage 2				8	-	-	-	-	-	-	-	-
Critical Hdwy				6.5	-	6.3	4.2	-	-	-	-	-
Critical Hdwy Stg 1				5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.59	-	3.39	2.29	-	-	-	-	-
Pot Cap-1 Maneuver				950	0	1039	1561	-	0	0	-	0
Stage 1				969	0	-	-	-	0	0	-	0
Stage 2				995	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				945	0	1039	1561	-	-	-	-	-
Mov Cap-2 Maneuver				945	0	-	-	-	-	-	-	-
Stage 1				964	0	-	-	-	-	-	-	-
Stage 2				995	0	-	-	-	-	-	-	-
Approach				WB			NB			SB		
HCM Control Delay, s				8.7			2.4			0		
HCM LOS				A								
Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT							
Capacity (veh/h)	1561	-	945	1039	-							
HCM Lane V/C Ratio	0.005	-	0.009	0.008	-							
HCM Control Delay (s)	7.3	0	8.8	8.5	-							
HCM Lane LOS	A	A	A	A	-							
HCM 95th %tile Q(veh)	0	-	0	0	-							

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	5	0	0	0	0	10	5	5	5	0
Future Vol, veh/h	10	0	5	0	0	0	0	10	5	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	75	75	75	63	63	63	63	63	63
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	16	0	8	0	0	0	0	16	8	8	8	0
Major/Minor	Minor2			Major1			Major2					
Conflicting Flow All	40	-	8				-	0	-	16	0	0
Stage 1	24	-	-				-	-	-	-	-	-
Stage 2	16	-	-				-	-	-	-	-	-
Critical Hdwy	6.5	-	6.3				-	-	-	4.2	-	-
Critical Hdwy Stg 1	5.5	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-				-	-	-	-	-	-
Follow-up Hdwy	3.59	-	3.39				-	-	-	2.29	-	-
Pot Cap-1 Maneuver	952	0	1051				0	-	0	1551	-	0
Stage 1	978	0	-				0	-	0	-	-	0
Stage 2	986	0	-				0	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	947	0	1051				-	-	-	1551	-	-
Mov Cap-2 Maneuver	947	0	-				-	-	-	-	-	
Stage 1	973	0	-				-	-	-	-	-	-
Stage 2	986	0	-				-	-	-	-	-	-
Approach	EB			NB			SB					
HCM Control Delay, s	8.8			0			3.7					
HCM LOS	A											
Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBL	SBT							
Capacity (veh/h)	-	947	1051	1551	-							
HCM Lane V/C Ratio	-	0.017	0.008	0.005	-							
HCM Control Delay (s)	-	8.9	8.5	7.3	0							
HCM Lane LOS	-	A	A	A	A							
HCM 95th %tile Q(veh)	-	0.1	0	0	-							

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	5	0	5	5	20	0	0	5	5
Future Vol, veh/h	0	0	0	5	0	5	5	20	0	0	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	63	63	63	63	63	63	63	63	63
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	0	8	0	8	8	32	0	0	8	8
Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				56	-	32	8	0	-	-	-	0
Stage 1				48	-	-	-	-	-	-	-	-
Stage 2				8	-	-	-	-	-	-	-	-
Critical Hdwy				6.5	-	6.3	4.2	-	-	-	-	-
Critical Hdwy Stg 1				5.5	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.5	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.59	-	3.39	2.29	-	-	-	-	-
Pot Cap-1 Maneuver				932	0	1019	1561	-	0	0	-	0
Stage 1				954	0	-	-	-	0	0	-	0
Stage 2				995	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				927	0	1019	1561	-	-	-	-	-
Mov Cap-2 Maneuver				927	0	-	-	-	-	-	-	-
Stage 1				949	0	-	-	-	-	-	-	-
Stage 2				995	0	-	-	-	-	-	-	-
Approach				WB			NB			SB		
HCM Control Delay, s				8.8			1.5			0		
HCM LOS				A								
Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT							
Capacity (veh/h)	1561	-	927	1019	-							
HCM Lane V/C Ratio	0.005	-	0.009	0.008	-							
HCM Control Delay (s)	7.3	0	8.9	8.6	-							
HCM Lane LOS	A	A	A	A	-							
HCM 95th %tile Q(veh)	0	-	0	0	-							

HCM 2010 TWSC
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Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	115	0	0	0	0	85	75	5	145	0
Future Vol, veh/h	5	0	115	0	0	0	0	85	75	5	145	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	45	45	85	85	85	45	45	45	45	45	45
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	11	0	256	0	0	0	0	189	167	11	322	0






Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	533	-	322	-	0	-	189	0	0
Stage 1	344	-	-	-	-	-	-	-	-
Stage 2	189	-	-	-	-	-	-	-	-
Critical Hdwy	6.7	-	6.5	-	-	-	4.4	-	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.77	-	3.57	-	-	-	2.47	-	-
Pot Cap-1 Maneuver	462	0	659	0	-	0	1233	-	0
Stage 1	660	0	-	0	-	0	-	-	0
Stage 2	780	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	457	0	659	-	-	-	1233	-	-
Mov Cap-2 Maneuver	457	0	-	-	-	-	-	-	-
Stage 1	653	0	-	-	-	-	-	-	-
Stage 2	780	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	457	659	1233	-
HCM Lane V/C Ratio	-	0.024	0.388	0.009	-
HCM Control Delay (s)	-	13.1	13.9	7.9	0
HCM Lane LOS	-	B	B	A	A
HCM 95th %tile Q(veh)	-	0.1	1.8	0	-






HCM 2010 TWSC
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Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	115	0	5	75	25	0	0	20	15
Future Vol, veh/h	0	0	0	115	0	5	75	25	0	0	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	0	0	0	135	0	6	88	29	0	0	24	18
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				229	-	29	24	0	-	-	-	0
Stage 1				205	-	-	-	-	-	-	-	-
Stage 2				24	-	-	-	-	-	-	-	-
Critical Hdwy				6.7	-	6.5	4.4	-	-	-	-	-
Critical Hdwy Stg 1				5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.77	-	3.57	2.47	-	-	-	-	-
Pot Cap-1 Maneuver				701	0	971	1427	-	0	0	-	0
Stage 1				767	0	-	-	-	0	0	-	0
Stage 2				931	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				657	0	971	1427	-	-	-	-	-
Mov Cap-2 Maneuver				657	0	-	-	-	-	-	-	-
Stage 1				719	0	-	-	-	-	-	-	-
Stage 2				931	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				11.8		5.8			0			
HCM LOS				B								
Minor Lane/Major Mvmt		NBL	NBT	WBLn1	WBLn2	SBT						
Capacity (veh/h)		1427	-	657	971	-						
HCM Lane V/C Ratio		0.062	-	0.206	0.006	-						
HCM Control Delay (s)		7.7	0	11.9	8.7	-						
HCM Lane LOS		A	A	B	A	-						
HCM 95th %tile Q(veh)		0.2	-	0.8	0	-						

HCM 2010 TWSC
1: Cadley Rd & I-20 EB Ramp

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Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	0	75	0	0	0	0	125	100	5	115	0
Future Vol, veh/h	15	0	75	0	0	0	0	125	100	5	115	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	45	45	85	85	85	45	45	45	45	45	45
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	33	0	167	0	0	0	0	278	222	11	256	0

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	556	-	256	-	0	-	278	0	0
Stage 1	278	-	-	-	-	-	-	-	-
Stage 2	278	-	-	-	-	-	-	-	-
Critical Hdwy	6.7	-	6.5	-	-	-	4.4	-	-
Critical Hdwy Stg 1	5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.77	-	3.57	-	-	-	2.47	-	-
Pot Cap-1 Maneuver	448	0	719	0	-	0	1140	-	0
Stage 1	709	0	-	0	-	0	-	-	0
Stage 2	709	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	443	0	719	-	-	-	1140	-	-
Mov Cap-2 Maneuver	443	0	-	-	-	-	-	-	-
Stage 1	701	0	-	-	-	-	-	-	-
Stage 2	709	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	443	719	1140	-
HCM Lane V/C Ratio	-	0.075	0.232	0.01	-
HCM Control Delay (s)	-	13.8	11.5	8.2	0
HCM Lane LOS	-	B	B	A	A
HCM 95th %tile Q(veh)	-	0.2	0.9	0	-




HCM 2010 TWSC
2: Cadley Rd & I-20 WB Ramp

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Intersection												
Int Delay, s/veh	7.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↰		↰			↱	↱
Traffic Vol, veh/h	0	0	0	75	0	5	100	40	0	0	15	5
Future Vol, veh/h	0	0	0	75	0	5	100	40	0	0	15	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	0	0	0	88	0	6	118	47	0	0	18	6
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				301	-	47	18	0	-	-	-	0
Stage 1				283	-	-	-	-	-	-	-	-
Stage 2				18	-	-	-	-	-	-	-	-
Critical Hdwy				6.7	-	6.5	4.4	-	-	-	-	-
Critical Hdwy Stg 1				5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.77	-	3.57	2.47	-	-	-	-	-
Pot Cap-1 Maneuver				636	0	948	1435	-	0	0	-	0
Stage 1				705	0	-	-	-	0	0	-	0
Stage 2				937	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				583	0	948	1435	-	-	-	-	-
Mov Cap-2 Maneuver				583	0	-	-	-	-	-	-	-
Stage 1				646	0	-	-	-	-	-	-	-
Stage 2				937	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				12.1		5.5		0				
HCM LOS				B								
Minor Lane/Major Mvmt		NBL	NBTWBLn1WBLn2	SBT								
Capacity (veh/h)		1435	-	583	948							
HCM Lane V/C Ratio		0.082	-	0.151	0.006							
HCM Control Delay (s)		7.7	0	12.3	8.8							
HCM Lane LOS		A	A	B	A							
HCM 95th %tile Q(veh)		0.3	-	0.5	0							

Intersection

Int Delay, s/veh 3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	5	5	10	5	5
Future Vol, veh/h	5	5	5	10	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	6	6	6	12	6	6

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	30	12	0
Stage 1	12	-	-
Stage 2	18	-	-
Critical Hdwy	6.45	6.25	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	-
Pot Cap-1 Maneuver	977	1060	-
Stage 1	1003	-	-
Stage 2	997	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	973	1060	-
Mov Cap-2 Maneuver	973	-	-
Stage 1	999	-	-
Stage 2	997	-	-






Approach	WB	NB	SB
HCM Control Delay, s	8.6	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1015	1579
HCM Lane V/C Ratio	-	-	0.012	0.004
HCM Control Delay (s)	-	-	8.6	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection												
Int Delay, s/veh	8.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱	↱		↱	↱	↱	↱	↱	↱	↱	↱
Traffic Vol, veh/h	50	0	10	20	0	145	45	5	30	240	15	160
Future Vol, veh/h	50	0	10	20	0	145	45	5	30	240	15	160
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	250	-	-	250	250	-	250	310	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	59	0	12	24	0	171	53	6	35	282	18	188
Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	797	729	18	794	882	6	206	0	0	41	0	0
Stage 1	582	582	-	112	112	-	-	-	-	-	-	-
Stage 2	215	147	-	682	770	-	-	-	-	-	-	-
Critical Hdwy	7.4	6.8	6.5	7.4	6.8	6.5	4.4	-	-	4.4	-	-
Critical Hdwy Stg 1	6.4	5.8	-	6.4	5.8	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.4	5.8	-	6.4	5.8	-	-	-	-	-	-	-
Follow-up Hdwy	3.77	4.27	3.57	3.77	4.27	3.57	2.47	-	-	2.47	-	-
Pot Cap-1 Maneuver	274	318	985	275	257	1001	1215	-	-	1406	-	-
Stage 1	453	457	-	829	752	-	-	-	-	-	-	-
Stage 2	728	725	-	397	372	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	186	243	985	222	196	1001	1215	-	-	1406	-	-
Mov Cap-2 Maneuver	186	243	-	222	196	-	-	-	-	-	-	-
Stage 1	433	365	-	793	719	-	-	-	-	-	-	-
Stage 2	578	693	-	314	297	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB		SB		SB	
HCM Control Delay, s	29		11		4.6		4.7		4.7		4.7	
HCM LOS	D		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1215	-	-	186	985	222	1001	1406	-	-		
HCM Lane V/C Ratio	0.044	-	-	0.316	0.012	0.106	0.17	0.201	-	-		
HCM Control Delay (s)	8.1	-	-	33.1	8.7	23.1	9.3	8.2	-	-		
HCM Lane LOS	A	-	-	D	A	C	A	A	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0	0.4	0.6	0.8	-	-		

HCM 2010 TWSC
4: Cadley Rd & I-20 EB Ramp




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Intersection												
Int Delay, s/veh	13.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	0	190	0	0	0	0	110	100	5	230	0
Future Vol, veh/h	5	0	190	0	0	0	0	110	100	5	230	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	45	45	85	85	85	45	45	45	45	45	45
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	11	0	422	0	0	0	0	244	222	11	511	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	777	-	511				-	0	-	244	0	0
Stage 1	533	-	-				-	-	-	-	-	-
Stage 2	244	-	-				-	-	-	-	-	-
Critical Hdwy	6.7	-	6.5				-	-	-	4.4	-	-
Critical Hdwy Stg 1	5.7	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-				-	-	-	-	-	-
Follow-up Hdwy	3.77	-	3.57				-	-	-	2.47	-	-
Pot Cap-1 Maneuver	329	0	511				0	-	0	1175	-	0
Stage 1	536	0	-				0	-	0	-	-	0
Stage 2	735	0	-				0	-	0	-	-	0
Platoon blocked, %												
Mov Cap-1 Maneuver	325	0	511				-	-	-	1175	-	-
Mov Cap-2 Maneuver	325	0	-				-	-	-	-	-	-
Stage 1	529	0	-				-	-	-	-	-	-
Stage 2	735	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	36.9						0			0.2		
HCM LOS	E											
Minor Lane/Major Mvmt	NBT		EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-		325	511	1175	-						
HCM Lane V/C Ratio	-		0.034	0.826	0.009	-						
HCM Control Delay (s)	-		16.5	37.4	8.1	0						
HCM Lane LOS	-		C	E	A	A						
HCM 95th %tile Q(veh)	-		0.1	8.2	0	-						

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↰		↰		↰			↱	↱
Traffic Vol, veh/h	0	0	0	190	0	5	95	30	0	0	30	15
Future Vol, veh/h	0	0	0	190	0	5	95	30	0	0	30	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	0	0	0	224	0	6	112	35	0	0	35	18
Major/Minor				Minor1		Major1			Major2			
Conflicting Flow All				294	-	35	35	0	-	-	-	0
Stage 1				259	-	-	-	-	-	-	-	-
Stage 2				35	-	-	-	-	-	-	-	-
Critical Hdwy				6.7	-	6.5	4.4	-	-	-	-	-
Critical Hdwy Stg 1				5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.77	-	3.57	2.47	-	-	-	-	-
Pot Cap-1 Maneuver				642	0	963	1413	-	0	0	-	0
Stage 1				723	0	-	-	-	0	0	-	0
Stage 2				920	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				590	0	963	1413	-	-	-	-	-
Mov Cap-2 Maneuver				590	0	-	-	-	-	-	-	-
Stage 1				664	0	-	-	-	-	-	-	-
Stage 2				920	0	-	-	-	-	-	-	-
Approach				WB		NB			SB			
HCM Control Delay, s				14.6		5.9			0			
HCM LOS				B								
Minor Lane/Major Mvmt		NBL	NBTWBLn1WBLn2		SBT							
Capacity (veh/h)		1413	-	590	963	-						
HCM Lane V/C Ratio		0.079	-	0.379	0.006	-						
HCM Control Delay (s)		7.8	0	14.8	8.8	-						
HCM Lane LOS		A	A	B	A	-						
HCM 95th %tile Q(veh)		0.3	-	1.8	0	-						

Intersection

Int Delay, s/veh 4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	5	5	5	5
Future Vol, veh/h	10	5	5	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	5	5	5	5	5	5
Mvmt Flow	12	6	6	6	6	6

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	27	9	0
Stage 1	9	-	-
Stage 2	18	-	-
Critical Hdwy	6.45	6.25	-
Critical Hdwy Stg 1	5.45	-	-
Critical Hdwy Stg 2	5.45	-	-
Follow-up Hdwy	3.545	3.345	-
Pot Cap-1 Maneuver	980	1064	-
Stage 1	1006	-	-
Stage 2	997	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	976	1064	-
Mov Cap-2 Maneuver	976	-	-
Stage 1	1002	-	-
Stage 2	997	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.7	0	3.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1004	1587
HCM Lane V/C Ratio	-	-	0.018	0.004
HCM Control Delay (s)	-	-	8.7	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection												
Int Delay, s/veh	15.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↱	↱		↱	↱	↱	↱	↱	↱	↱	↱
Traffic Vol, veh/h	150	0	40	30	0	205	15	15	20	155	25	60
Future Vol, veh/h	150	0	40	30	0	205	15	15	20	155	25	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	250	-	-	250	250	-	250	310	-	250
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	176	0	47	35	0	241	18	18	24	182	29	71
Major/Minor	Minor2		Minor1		Major1		Major2		Major2		Major2	
Conflicting Flow All	580	471	29	506	518	18	100	0	0	42	0	0
Stage 1	393	393	-	54	54	-	-	-	-	-	-	-
Stage 2	187	78	-	452	464	-	-	-	-	-	-	-
Critical Hdwy	7.4	6.8	6.5	7.4	6.8	6.5	4.4	-	-	4.4	-	-
Critical Hdwy Stg 1	6.4	5.8	-	6.4	5.8	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.4	5.8	-	6.4	5.8	-	-	-	-	-	-	-
Follow-up Hdwy	3.77	4.27	3.57	3.77	4.27	3.57	2.47	-	-	2.47	-	-
Pot Cap-1 Maneuver	387	452	971	435	424	985	1335	-	-	1405	-	-
Stage 1	579	560	-	892	798	-	-	-	-	-	-	-
Stage 2	754	778	-	537	519	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	260	388	971	369	364	985	1335	-	-	1405	-	-
Mov Cap-2 Maneuver	260	388	-	369	364	-	-	-	-	-	-	-
Stage 1	571	487	-	880	788	-	-	-	-	-	-	-
Stage 2	562	768	-	445	452	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB		SB		SB	
HCM Control Delay, s	36.5		10.6		2.3		5.1		5.1		5.1	
HCM LOS	E		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1335	-	-	260	971	369	985	1405	-	-		
HCM Lane V/C Ratio	0.013	-	-	0.679	0.048	0.096	0.245	0.13	-	-		
HCM Control Delay (s)	7.7	-	-	43.8	8.9	15.8	9.8	7.9	-	-		
HCM Lane LOS	A	-	-	E	A	C	A	A	-	-		
HCM 95th %tile Q(veh)	0	-	-	4.4	0.2	0.3	1	0.4	-	-		






HCM 2010 TWSC
4: Cadley Rd & I-20 EB Ramp

03/28/2019

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰		↱					↱	↱		↰	
Traffic Vol, veh/h	15	0	105	0	0	0	0	205	170	5	115	0
Future Vol, veh/h	15	0	105	0	0	0	0	205	170	5	115	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	Free	-	-	None
Storage Length	0	-	0	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	45	45	45	85	85	85	45	45	45	45	45	45
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	33	0	233	0	0	0	0	456	378	11	256	0
Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	734	-	256				-	0	-	456	0	0
Stage 1	278	-	-				-	-	-	-	-	-
Stage 2	456	-	-				-	-	-	-	-	-
Critical Hdwy	6.7	-	6.5				-	-	-	4.4	-	-
Critical Hdwy Stg 1	5.7	-	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-				-	-	-	-	-	-
Follow-up Hdwy	3.77	-	3.57				-	-	-	2.47	-	-
Pot Cap-1 Maneuver	349	0	719				0	-	0	972	-	0
Stage 1	709	0	-				0	-	0	-	-	0
Stage 2	583	0	-				0	-	0	-	-	0
Platoon blocked, %									-	-		
Mov Cap-1 Maneuver	344	0	719				-	-	-	972	-	-
Mov Cap-2 Maneuver	344	0	-				-	-	-	-	-	-
Stage 1	700	0	-				-	-	-	-	-	-
Stage 2	583	0	-				-	-	-	-	-	-
Approach	EB						NB			SB		
HCM Control Delay, s	12.9						0			0.4		
HCM LOS	B											
Minor Lane/Major Mvmt	NBT		EBLn1	EBLn2	SBL	SBT						
Capacity (veh/h)	-		344	719	972	-						
HCM Lane V/C Ratio	-		0.097	0.325	0.011	-						
HCM Control Delay (s)	-		16.6	12.4	8.7	0						
HCM Lane LOS	-		C	B	A	A						
HCM 95th %tile Q(veh)	-		0.3	1.4	0	-						

HCM 2010 TWSC
5: Cadley Rd & I-20 WB Ramp

03/28/2019

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	105	0	5	170	50	0	0	20	5
Future Vol, veh/h	0	0	0	105	0	5	170	50	0	0	20	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	None	-	-	Free
Storage Length	-	-	-	0	-	0	-	-	-	-	-	0
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	30	30	30	30	30	30	30	30	30	30	30	30
Mvmt Flow	0	0	0	124	0	6	200	59	0	0	24	6
Major/Minor				Minor1		Major1		Major2				
Conflicting Flow All				483	-	59	24	0	-	-	-	0
Stage 1				459	-	-	-	-	-	-	-	-
Stage 2				24	-	-	-	-	-	-	-	-
Critical Hdwy				6.7	-	6.5	4.4	-	-	-	-	-
Critical Hdwy Stg 1				5.7	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.7	-	-	-	-	-	-	-	-
Follow-up Hdwy				3.77	-	3.57	2.47	-	-	-	-	-
Pot Cap-1 Maneuver				495	0	933	1427	-	0	0	-	0
Stage 1				581	0	-	-	-	0	0	-	0
Stage 2				931	0	-	-	-	0	0	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver				423	0	933	1427	-	-	-	-	-
Mov Cap-2 Maneuver				423	0	-	-	-	-	-	-	-
Stage 1				497	0	-	-	-	-	-	-	-
Stage 2				931	0	-	-	-	-	-	-	-
Approach				WB		NB		SB				
HCM Control Delay, s				16.6		6.1		0				
HCM LOS				C								
Minor Lane/Major Mvmt		NBL	NBT	WBLn1	WBLn2	SBT						
Capacity (veh/h)		1427	-	423	933	-						
HCM Lane V/C Ratio		0.14	-	0.292	0.006	-						
HCM Control Delay (s)		7.9	0	17	8.9	-						
HCM Lane LOS		A	A	C	A	-						
HCM 95th %tile Q(veh)		0.5	-	1.2	0	-						



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MEETING MINUTES

Project: PI 0008680, Warren County I-20 Frontage Road, Phase 2
Pond Project No: 1170657
Meeting: Concept and Alternatives Discussion
Meeting Location: Warren County Courthouse
Meeting Date: August 9, 2017

Minutes Prepared By: Jake Corbin
Prepared On: August 10, 2017

Copies: to file
Attendees

ATTENDEES:

Name	Company/Dept/Branch	Phone	Email
Kevin Skinner	Pond	706.833.4671	skinnerk@pondco.com
Daniel Sabia	Pond	404.748.4809	sabiad@pondco.com
Jake Corbin	Pond	706.833.4671	corbinj@pondco.com
Eric Wilkinson	GDOT TIA	478.539.8522	ewilkinson@dot.ga.gov
George Brewer	GDOT TIA	478.538.8604	gbrewer@dot.ga.gov
John Graham	Warren County BOC	706.465.2171	warrencoboc@classicssouth.net
O.B. McCorkle	Warren County Develop.	706.832.1601	development@warrencountyga.com
Pat Smeeton	Pond	706.465.2171	smeetonp@pondco.com

PURPOSE OF MEETING:

To present 3 alternate routes for PI 0008680.

The budget for Phase 2 is \$4 Million. Cost estimates for each alternate is based on the ratio of the length of Phase 1 (2.44 mi, currently \$7.0M).

The 3 alternates from the west end of Phase 1 at the Cadley Road intersection are as follows:

- Alternate 1 is a frontage road connecting to Williams Creek Church Road (2.46 mi, \$7.0M)
- Alternate 2 is a 1-mile long cul-de-sac along the same route as alternate 1 (1.00 mi, \$2.9M)
- Alternate 3 is to improve Charles Ray Road to Atlanta Highway/278 (1.82 mi, \$5.2M)

All 3 alternates were designed with a design speed of 55 mph.

The three alternatives were discussed:

- Alternate 3 was not preferred as it does not open up as much property for development. Charles Ray Road itself does not serve a significant purpose and a significant portion could possibly be closed, if necessary to facilitate development.
- Alternate 1 was the preferred alternate as it opens up for more development to the larger parcels in the area. The connection to Williams Creek Church is preferred and would increase the ease of approval with FHWA.
- In favor of Alternate 1, POND is to adjust the west end (connecting to Williams Creek Church Road) northward or southward, keeping the alignment as close to the parcel lines as possible to reduce the impact on individual parcels. The intersection with Williams Creek Church should be checked for skew angle and sight distance. There may be some concern connecting to an existing dirt road.

Phase I currently has \$10.7 budgeted for construction with a cost estimate of \$7 million. Since Phase II only has \$4.2 million in construction funding, there may be an opportunity to shift \$3 million from Phase I to Phase II to complete the full alignment.

The typical section discussed was similar to that of phase 1 with 2-12 ft lanes and 10 foot shoulder, 6.5 ft paved, with the consideration of a future 3 lane road. However, a reduced typical section consisting of 2 foot paved shoulder was suggested with to reduce cost.

The proposed right-of-way width for this project is 80 feet.

The environmental considerations for this project are the same for Phase I. However, Phase II is Band 3, so the schedule is not as tight. Some discussion turned towards attempting to include Phase II environmental document into Phase I as a re-evaluation since they are linked projects. This would reduce the amount of work, documentation, and time needed for Phase II environmental. However, FHWA may not allow this and adding Phase II into the current EA would likely prevent delivery of Phase I in Band 2.

Phase II will cross Dixie Pipeline and effort should be made to avoid any conflict.

Phase I was also discussed:

- Reduce the shoulder paved width to 2 feet to reduce construction costs
- Draft EA and Assessment of Effects is due October 1, 2017
- PIOH should be held soon, Eric and GDOT D2 will coordinate with the County
- FHWA has reviewed the NELT and made comments. They are minimal and currently being responded to.
- Draft EA expected to be approved by March 2018, PHOH and FONSI likely to take about a year
- There are 4 property owners on Phase I, the County may want to move forward with purchasing right of way early, "at-risk", in order to reduce delays in the schedule later [is this a problem? With federal funds in construction, are we required to follow federal R/W process?]
- The cost estimate for utilities included relocation of the gas line (AGL), if there is no conflict this could reduce the cost estimate by \$1 million
- The right of way width should be 80 feet

ACTION ITEMS:

Eric to review and begin the process of shifting funds from Phase I to Phase II.

POND to look at the tie-in of Alternate 1 and Williams Creek Church Road.

END OF MEETING MINTUES



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MEETING MINUTES

Project:	0008680, Warren County Phase II					
Pond Project No:	1170657					
Meeting:	Discuss Alignment Options					
Meeting Location:	Warren County Courthouse			Meeting Date:	11.28.2018	
Minutes Prepared By:	Sean Shepherd		Copies:	to file	Kevin Skinner	
Prepared On:	11.28.2018			Attendees		

ATTENDEES:

Name	Company/Dept/Branch	Phone	Email
Daniel Sabia	POND		sabiad@pondco.com
Sean Shepherd	POND		shepherds@pondco.com
Erick Wilkinson	GDOT TIA		ewilkinson@dot.ga.gov
John Graham	Warren County BOC		jgraham@classicssouth.net

PURPOSE OF MEETING:

To discuss alignment options pertaining to PI No. 0008680, Warren County Phase II project. Three alternate alignments with differing tie-ins to Williams's Creek Church Road were presented.

- Alternate 1 – The majority runs parallel to I-20 ROW, ties in on William's Creek Church Road nearest to I-20 on the north side of the parcel belonging to Timothy M Dukes.
- Alternate 2 – Turns away from I-20 running south of the existing pond on parcel belonging to Timothy M Dukes. Remains within the surveyed area. There would also be significant challenges with existing environmental factors.
- Alternate 3 – Turns away from I-20, runs along the southern property line of the parcel belonging to Timothy M Dukes. Partially outside of the surveyed area. There would also be significant challenges with existing environmental factors.

ACTION ITEMS:

- The 3 alignments were reviewed and the County agreed that Alternate 1, the original layout, would be the best to move forward with.

- Eric said to move forward with the concept development on this alignment.
 - Environmental survey should move forward with this alignment.
- John Graham to discuss Alignment 1 with property owner (Timothy M Dukes).
 - John requested an updated drawing only depicting Alignment 1.
- John mentioned that William's Creek Church ROW has been bought in preparation for paving to 278 (80' ROW), provide information for concept development, and to Pat.
- John stated that the County does not own the dirt roads, they are considered prescriptive easements.
- Phase 2 crosses a gas line near Charles Ray Road, the proposed roadway should stay close to grade, including any ditches.
-
- Phase 1 plans have been revised per the new Regional Permits
 - This also changed the ROW plans
 - POND to send ROW plans to Eric for submission for approval with GDOT
 - Location and Design will be some time next year

ADDITIONAL COMMENTS:

None.

Concept Utility Report

Project Number: N/A

District: 2 - Tennille

County: Warren

Prepared by: Tonia Parker

P.I. # 0008680

Date: August 14, 2019

Project Description: I-20 Frontage Road from CR 187/Ridge Road to SR 80 - Phase II - TIA

The information provided herein has been gathered from Georgia811and/or field visits and serves as an estimate. Nothing contained in this report is to be used as a substitute for 1st Submission or SUE.

Are SUE services recommended? No

Level: ☐A ☐B ☐C ☐D

Public Interest Determination (PID):

☐Automatic ☐Mandatory ☐Consideration ☒No Use ☐Exempt

Is a separate utility funding phase recommended? Yes

Potential Project (Schedule/Budget) Impacts: None at this time.

Capital Improvement Projects (Utilities) Anticipated in the Area: None at this time.

Project Specific Recommendations for Avoidance/Mitigation: Minimize impacts to Dixie's 8" HP steel gas pipeline.

Right of Way Coordination: Easement Limited Agreement for Dixie Pipeline Company.

Environmental Coordination: Clear entire right of way for placement of utilities.

Additional Remarks: N/A

Utilities facilities within the project limits.**Utilities have been identified using Georgia 811 and/or field visits.**

Facility Owner	Facility Owner Contact Email Address	Existing Facilities/ Appurtenances	General Description of Location	Facilities to Avoid <i>approx. limits</i>	Facilities Retention Recommended <i>approx. limits</i>	Comments
AT&T (Distribution)	Jeff Surrency ws1449@att.com	22 guage/50 pr copper cable	North side of Williams Creek Church Road	N/A	N/A	N/A
Dixie Pipeline Company	Chris Robertson CRobertson@DixiePipeline.com	8" HP steel gas pipeline	New Alignment	N/A	N/A	N/A
Jefferson Energy Cooperative	Cameron Marchant cmarchant@jec.coop	Single Phase Distribution Electric Pole Line	New Alignment	N/A	N/A	N/A

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